



**Declaration for Record of Decision**  
**Statutory Preference for Treatment as a**  
**Principle Element is not met**  
**and Five Year Site Review is Required**

**Site Name and Location**

Interstate Pollution Control  
Rockford, IL

**Statement of Basis and Purpose**

This decision document presents the selected remedial action for the Interstate Pollution Control site, in Rockford, Illinois which was chosen in accordance with Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by Superfund Amendments and Reauthorization Act (SARA) and, to the extent practicable the National Contingency Plan. This decision is based on the administrative record file for this site.

The U. S. Environmental Protection Agency concurs with the selected remedy.

**Assessment of the Site**

The response action selected in this Record of Decision is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

**Description of the Selected Remedy**

This operable unit is the final action for the site. This final operable unit will address soil contamination and sources of continuing groundwater contamination. This action addresses the principal threat remaining at the site by capping contaminated soils preventing further migration of contaminants to groundwater, placing institutional controls on future uses of the site and, monitored natural attenuation of contaminants currently in the groundwater. As institutional controls and natural attenuation are key components of the remedy long-term management and monitoring of the site will be required.

**Statutory Determinations**

**Part 1: Statutory Requirements** - The Selected Remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to the remedial action, is cost-effective, and utilizes permanent solutions and alternative treatment (or resource recovery) technology to the maximum extent practicable.

**Part 2: Statutory Preference for Treatment** - The remedy in this Operable Unit (OU) does not satisfy the statutory preference for treatment as a principle element of the remedy for the following reasons:

- a) The largest quantity of material containing hazardous substances at the site is foundry sand fill which is not amenable to in-situ treatment and has been found to be technically impracticable to remove for ex-situ treatment or off-site disposal.
- b) The fill contains a limited quantity of solvents (less than 2,000 pounds) distributed at relatively dilute concentrations. The solvent contaminated fill, which would be amenable to the presumptive remedy of Soil Vapor Extraction ("SVE"), contains solvents at concentrations which are not believed to present a threat to groundwater following construction of the containment (i.e. cap) remedy. Verification that the solvent contaminated fill is not a continuing contributor of contaminants to groundwater will be a component of the five year review.

c) Soil Vapor Extraction as a component of a final remedy carries the risk of inducing landfill gas migration into the IPC site from the adjacent Peoples Avenue Landfill. While this potential landfill gas migration is believed to be manageable this Record of Decision defers implementation of the SVE component of the remedy until the cap component is in place and functioning. Deferral of a final decision as to implementation of the SVE component of the remedy to the five year review will allow for adequate assessment of the landfill gas threat and more accurate costing of the SVE component considering potential landfill gas effects on the SVE emission control equipment and / or the engineering feasibility and cost of precluding landfill gas migration.

**Part 3: Five-Year Review Requirements** - Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

#### **ROD Data Certification Check List**

The following information is included in the Decision Summary section of this Record of Decision. Additional information can be found in the Administrative Record file for this site.

- Chemicals of concern and their respective concentrations
- Baseline risk represented by the chemicals of concern.
- Cleanup levels established for chemicals of concern and the basis for these levels.
- How source materials constituting principle threats are addressed.
- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD.
- Potential land and groundwater use that will be available at the site as a result of the Selected Remedy.
- Estimated capital, annual operation and maintenance (O&M), and total present worth cost, discount rate, and the number of years over which the remedy cost estimates are projected.
- Key factor(s) that led to selecting the remedy (i.e. describe how the Selected Remedy provides the best balance of tradeoffs with respect to the balancing and modifying criteria, highlighting criteria key to the decision).



Signature (Director, Illinois EPA)

9.28.99

Date

\_\_\_\_\_  
Signature (Assistant Administrator / Regional Administrator)

**Record of Decision Summary**  
**Interstate Pollution Control Superfund Site**  
**Rockford, Illinois**

**I. Site Location and Description**

The Interstate Pollution Control Inc. ("IPC") site (the site) is located in an industrial area in the south central part of Rockford, Winnebago County, Illinois north west of Magnolia Peoples Avenue. The National Superfund Wastelan Database identification number for the site is ILT180011975. The small (approximately 2.8 acre), irregularly-shaped site measures approximately 850 feet along the north boundary line and 270 feet along the east boundary line.

The Remedial Investigation/Feasibility Study ("RI/FS") of this former waste recycler/transporter site was conducted by the Potentially Responsible Parties ("PRPs") under the oversight of the Illinois Environmental Protection Agency ("Illinois EPA"). All RI/FS activity was funded by the PRPs and conducted consistent with a Partial Consent Decree with the State of Illinois.

During IPC's operation of the site it contained, at various times, at least six under ground storage tanks, one large above ground storage tank, an unlined surface impoundment, a gas fired incinerator, and several structures. IPC's operation at the site included transporting and bulking of waste oils, solvents and cyanide waste for incineration, resale and/or off-site disposal. Also during IPC's operation of the site support service was provided to two sister companies; a portable toilet business and a Roto-Rooter franchise. Prior to IPC's operations the site was extensively quarried and backfilled with various materials including a large quantity of foundry sand, following filling of the quarry and immediately prior to IPC's operations the site was the location of an auto salvage yard.

**II. Site History and Enforcement Activities**

The Illinois EPA, U.S. Environmental Protection Agency ("U.S. EPA"), and other state and federal agencies began to investigate and evaluate the IPC site conditions in 1979. In 1985, the U.S. EPA conducted a preliminary field investigation of the site and the adjacent Peoples Avenue Landfill and in 1987, evaluated the site under the Hazard Ranking System ("HRS"). The IPC site received an HRS score of 46.01 and was placed on the National Priorities List ("NPL") on June 24, 1988.

In 1991, private parties negotiated a Partial Consent Decree with the Illinois EPA and the Attorney General of the State of Illinois. The Partial Consent Decree required that the private parties ("Respondents") undertake a Remedial Investigation/Feasibility Study ("RI/FS") at the Site. The RI Work Plan was completed in 1992, and the field investigations were conducted in 1993-1994. The final RI Report was submitted in 1997.

Significant removal actions have occurred at the IPC site on two different occasions. The incinerator was removed between 1976 and 1979. IPC conducted a partial cleanup of the site in 1979 and 1980, in response to an Illinois Pollution Control Board Order. During this partial cleanup of the site

several bulk tankers containing wastes, approximately 180 yds<sup>3</sup> of material from the surface impoundment, and approximately 120 yds<sup>3</sup> of cyanide contaminated were removed. Reportedly, 1200 drums of contaminated materials were also removed from the Site during this cleanup. The surface impoundment was backfilled and graded.

On August 6, 1991, the U.S. EPA issued a Unilateral Administrative Order ("UAO") to IPC and a group of potentially responsible parties ("Respondents") to conduct additional removal activities at the site. Beginning in 1992, the Respondents to the UAO fenced the site, removed over 1,400 tons of solid and hazardous waste (including visibly stained soils), demolished and removed all above-ground and underground tanks and significant physical structures, installed a clay cover over the former impoundment, and substantially cleared the site

These removal actions eliminated more than 2.9 million pounds of solid and hazardous waste. These materials constituted principal threats at the site, and were removed, treated, destroyed or disposed of prior to the initiation of the RI/FS.

### **III. Community Participation**

The RI/FS Report and Proposed Plan for the IPC site in Rockford, IL were made available to the public in July of 1999. They can be found in the Administrative Record file and information repository at the Illinois EPA's Bureau of Land Division file in Springfield, IL and at the Rockford Public Library, 215 North Wyman St. Rockford, IL. The notice of the availability of these two documents was published in the Rockford Register Star on July 9, 16, and 23, 1999. A public comment period was held from July 10 to September 10, 1999. An extension to the public comment period was requested. As a result, the comment period was extended to September 17, 1999. In addition, a public hearing was held on August 10, 1999 starting at 7:00 PM at the Holley Center, 2000 Christina Street in Rockford, IL to present the Proposed Plan to a broader community audience than those that had already been involved at the site. At this hearing representatives of the Illinois EPA answered questions about the remedial alternatives and the preferred option presented in the Proposed Plan. Illinois EPA's response to the comments received during this period is included in the Responsiveness Summary, which is part of this Record of Decision (ROD).

### **IV. Scope and Role of Operable Unit or Response Action**

The remedial action described in this ROD addresses remaining soil and groundwater contamination at the site. Soil contamination at the site poses a current and potential risk to human health because U.S. EPA's acceptable risk range is exceeded for dermal contact with soils, ingestion of soil, inhalation of dust, inhalation of contaminants which can volatilize to air, and concentrations of contaminants in groundwater are greater than the maximum contaminant levels for drinking water. This action presents the final response action anticipated for the site and addresses the principle threats by installation of an impermeable barrier over the site, placing institutional controls on future site uses, reinforcing existing city and state groundwater use restrictions, and addressing groundwater contamination resulting from this site by implementation of a monitored natural attenuation program.

## V. Site Characteristics

The site is located in an area that has been heavily industrialized since the turn of the century. Historic industrial activities in the area include metal casting, plating, machine tooling, textile manufacturing, leather tanning and printing operations. Aerial photographs and maps from the early to mid-1900s indicate there were several major quarries in the site vicinity. Most of these quarries have since been filled. A 1918 topographic map indicates a quarry existed beneath most of the IPC site. Later aerial photographs show those portions of the quarry under the site being completely filled by 1943.

The closest residential area to the IPC site is located approximately 600 feet to the north (hydraulically up-gradient to cross gradient of the site). Other residential areas are located approximately 2,700 feet to the east of the site, and 2,300 feet to the southeast. Blackhawk Park is located approximately 700 feet to the northwest of the site. None of these areas has been impacted by the IPC site. Please see the attached map entitled **IPC Site Area** for a better understanding of the site location and to support the following discussion of the regional environmental setting.

The IPC site is surrounded by significant industrial facilities. The Gunitite Foundry, located northeast of the site, has been in operation for at least 80 years. A pond located immediately north of the IPC site had been used by the foundry for the discharge of storm water and cooling water from casting operations. At the time of the RI field activities, the pond was still receiving some discharge from the Foundry and contained a considerable volume of water. Since that time, an independent waste disposal company has acquired the property, and the foundry stopped discharging to the pond. The disposal company has been using the property to store construction equipment, and has been slowly filling the pond with what appears to be construction debris. The pond is now dry, and the east half of the pond has been filled level with surrounding grade. The RI Report documents the current status of the pond, which can no longer be considered a significant environmental feature. Consequently, the former pond does not warrant further discussion.

A former pet food plant, located immediately southwest of the site, processed meat and produced pet food from the turn of the century until the 1980s. Several areas on the property may have been excavated and then filled with solid fill materials.

The Peoples Avenue Landfill is located immediately southeast and south of the site. This property was originally a sand and gravel quarry. The City of Rockford (the City) used the quarry for waste disposal from 1942 until 1972, receiving residential, commercial and industrial wastes. Methane gas generated by the landfill was detected in the basement of the adjacent pet food plant (venting pipes constructed later within the landfill alleviated the gas problem at the plant).

In 1957, the City installed a public supply well (Municipal Well No. 14) near the southeast corner of the Peoples Avenue Landfill. This well was abandoned in 1971 (prior to the start of IPC operations) because of deteriorating water quality (significant increases in chloride, manganese, sodium, ammonia, alkalinity, hardness and dissolved minerals). The deteriorating water quality was

attributed to the landfill. Furthermore, the pet food plant had four wells prior to 1966. In 1965, taste and odor problems became apparent in the well water. The deterioration in water quality was believed to be the result of contamination by the adjacent Peoples Avenue Landfill.

The former Mattison Machine Works is located approximately 1,000 feet northeast (i.e., up-gradient) of the IPC site. Illinois EPA records indicate that perchloroethylene (PCE) is present in groundwater beneath the facility. Ongoing monitoring by Mattison Machine Works indicates that a plume of volatile organic compounds (VOCs), including PCE, trichloroethylene (TCE), and 1,1,1-trichloroethane (TCA), is passing beneath the Mattison property from another up-gradient source. The maximum detected VOC concentrations included PCE at 10,600  $\mu\text{g/L}$ , TCE at 1,500  $\mu\text{g/L}$ , and 1,1,1-TCA at 800  $\mu\text{g/L}$ . It is important to note that these concentrations are significantly greater than the concentrations of these same constituents in groundwater beneath the IPC site.

Of particular relevance to the remedial action described in this ROD is the fact that the IPC site is encompassed by the much larger Southeast Rockford Study Area. The Southeast Rockford Groundwater Contamination ("SER") site began with the discovery of VOCs in groundwater within a residential area of nearly two square miles. That discovery prompted the U.S. EPA to ultimately extend water mains and connect 526 residences to City water at a cost of approximately \$4 million. The SER site was then added to the NPL. After further Illinois EPA study, the SER site was expanded to a ten square mile study area ("SER Study Area") which incorporates almost 20% of the City and includes the IPC site (see the attached IPC Site Area figure). Studies have since indicated the widespread presence of chlorinated solvents in groundwater within this ten square mile area, in concentrations varying from less than 10 ppb to over 10,000 ppb. As a result of the widespread groundwater contamination, the City closed several municipal wells in this general area.

On September 29, 1995, the Illinois EPA issued a Record of Decision ("ROD") which addressed groundwater contamination at the SER Site. The ROD defined the SER Site boundary as the area within the 10  $\mu\text{g/L}$  contour line of the main VOC plume (approximately 1200 feet southeast of the IPC site at the closest point). It must be noted, however, that the Illinois EPA and the U.S. EPA had not independently investigated groundwater conditions in the general up-gradient vicinity of the IPC site which, as noted earlier, exhibit elevated concentrations of VOCs.

Within the SER site, the Illinois EPA selected groundwater use restrictions as the appropriate groundwater response action. The selected response action includes groundwater monitoring for at least 205 years, installation of water mains in the affected areas, connecting additional residences and businesses to City water, and implementation of institutional controls. The Illinois EPA stated that, with this groundwater response action, contaminants would be removed from groundwater by natural attenuation. The City of Rockford is pursuing a tax program to assume the responsibility to address groundwater concerns area wide. This program includes institutional controls on groundwater use and operational components of water treatment to remove VOCs from city water.

The IPC site is located approximately 1,600 feet east of the Rock River, outside the limits of the 500-year floodplain. The site is generally flat, and there is little runoff from the property. Most surface

water (rainwater and snow-melt) accumulates in shallow puddles and eventually evaporates or infiltrates into the subsurface soils. In areas surrounding the site, surface water drains to storm sewer catch basins.

Fill is present across most of the site and extends to depths of up to 46 feet. Most of the on-site fill consists of fine black sand believed to be foundry sand. The fill also includes wood, glass, concrete, brick and slag. Deposits of medium to coarse sand, and sand and gravel occur beneath the fill. These out-wash deposits extend to a depth of about 100 feet. Firm to very dense silt, clayey silt or silty clay layers are interbedded within the sand and gravel deposits in the site vicinity. The bedrock surface is approximately 150 to 200 feet below groundwater surface.

As the primary sources of contamination had been previously removed, as discussed in Section II above, the following conceptual site model for soils and groundwater was developed and used for the RI and carried through the Baseline Risk Assessment. Terrestrial and aquatic biota were not considered at risk from the site and were not carried forward. Surface soil, sub-surface soil, sediment in the adjacent quarry pit, and groundwater were investigated during the sampling portion of the RI which was conducted in 1993 and 1994. As no ongoing air releases were occurring at the site, but were possible during past operation of the incinerator, sampling of off-site surface soils was conducted to assess impacts; none were found. A total of 23 new or existing shallow and deep monitoring wells were utilized to assess site impacts on groundwater. The near-surface unconfined aquifer is the aquifer of concern; consequently, monitoring wells were not installed in the deep aquifers located below the confining silty stratum at this site. The general direction of groundwater flow is southwest to west southwest towards the Rock River. The groundwater flow velocity in the surficial aquifer in the site study area ranges from 0.75 to one foot per day (300 - 400 feet per year). One of the most notable outcomes of the groundwater portion of the investigation was verification that a plume of chlorinated volatile organic compounds, at substantially higher concentrations than occur on site is approaching the site from the north east. This plume is expected to reach the IPC site in 15 to 45 years.

**Exposure Pathways Quantitatively Assessed in the Baseline RA**

Exposure Route	Potentially Exposed Population					
	Residents		Workers		Trespassers	
	Adult	Child	On-site	Construction	Adult	Child
Ingestion of groundwater	F	- F	F	-	-	-
Inhalation of VOCs from groundwater	F	F	F	-	-	-
Inhalation of dust	F	F	C,F	F	C,F	C,F
Ingestion of soil	F	F	C,F	F	C,F	C,F
Dermal absorption from soil	F	F	C,F	F	C,F	C,F
Inhalation of VOCs in ambient air	F	F	F	F	C,F	C,F
C,F Indicates exposure is assumed under both current and future land use scenarios. F Indicates exposure is assumed only under future land use scenario. - Indicates not a complete exposure pathway for this receptor population.						

Specifically to assess contaminated deep and shallow groundwater impacts on the Rock River two (2) shallow and two (2) deep monitoring wells were installed down-gradient of the site, in close proximity to the river. Only vinyl chloride (maximum detected concentration - 6 ug/l) and manganese (maximum detected concentration 3240 ug/l) were identified at levels above MCLs. Neither of these contaminants could be fully attributed to the IPC site because of the close proximity and up-gradient location of Peoples Avenue Landfill and the nearly ubiquitous nature of these two contaminants in the Southeast Rockford area.

Groundwater supplies in Winnebago County are obtained from aquifers in both the glacial drift deposits and bedrock. Principal aquifers within the glacial drift are generally limited to major bedrock valleys with thick sand and gravel deposits. Although there are industrial and municipal wells which draw water from the drift aquifers, the Galena-Platteville bedrock formation is the primary source of potable groundwater for domestic use.

Water supplies delivered by pipe mains are available from the public utility for the entire IPC site RI study area, including the residences north of the site and Blackhawk Park. A well inventory indicates that all recorded wells located down-gradient of the site have either been abandoned or no longer exist and that there are no consumers of well water who might be impacted by groundwater contamination at the site and contamination originating up-gradient of the site.

No wetland areas are threatened as a result of IPC site activities or the groundwater plume which extends beyond the property boundary, and no other critical habitats have been identified. The ecological risk assessment concluded that contaminant levels detected at the site are unlikely to pose a high ecological risk to local flora and fauna; no adverse impacts were observed at the site during a reconnaissance; and no state or federal threatened or endangered species are likely to be affected by site contaminants.

Seventy three (73) chemicals of potential concern ("COPC"s) detected in site soils were selected for the risk assessment. These included 11 volatile organic compounds ("VOCs"), 29 semi-volatile organic compounds ("SVOCs"), 14 pesticide/PCB compounds and 18 trace metals, and cyanide. A total of 33 chemicals detected in on-site groundwater (shallow and deep) were selected as COPCs. These included 11 VOCs, 10 SVOCs, one pesticide/PCB compound, 11 trace metals, and cyanide.

The following table summarizes those COPC's found to be risk drivers in the risk assessment.



Risk Driving Chemicals of Potential Concern				
	Soil		Ground-Water	
	Non-Carcinogenic	Carcinogenic	Non-Carcinogenic	Carcinogenic
Metals	Cadmium Chromium (VI) Copper Manganese	Arsenic Cadmium Chromium (VI) Beryllium	Manganese	Arsenic
Volatiles	1,1 Dichloroethane Trichloroethane	Chloroform Methylene Chloride  Vinyl Chloride	1,2 Dichloroethane Vinyl Chloride Acetone	1,1 Dichloroethane Tetrachloroethane 1,1,2 Trichloroethane Vinyl Chloride
PCBs/Pesticides		PCBs Heptachlor epoxide		
PolyAromatic Hydrocarbons		Numerous		Numerous
SemiVolatiles		Bis(2-ethylhexyl)phthalate		

There is no evidence to indicate that Resource Conservation & Recovery Act (RCRA) listed wastes were handled at the facility during its operation and no characteristic wastes were left on-site following the previously discussed removal actions.

## VI. Current and Potential Future Site and Resource Uses

The IPC site is currently unused property zoned for general industrial use only. The site is secured by a chain link fence and locked gate with no on-site activity. The property is the subject of a Declaration of Restriction filed with the Winnebago County Recorder which contains the following pertinent language "the following restrictions are hereby placed upon the use of the aforesaid real property (also described herein as "the site") and shall run with the land, so as to prohibit to-wit: a) all residential development of the site; b) all public access to the site except for general industrial use; c) all unpermitted treatment, storage or disposal of waste on the site; and d) all uses of groundwater at the site; all of the above except as required by the Illinois Environmental Protection Agency or the United States Environmental Protection Agency." This Declaration of Restriction was filed March 10, 1995.

In addition to the above, the selected alternative would require additional Declarations of Restriction to include at a minimum the following: insurance of protection of construction workers during future on-site excavation or other penetrations of the impermeable barrier by requiring appropriate OSHA training of construction workers, appropriate and applicable health & safety plans during construction activities, compliance with Applicable or Relevant & Appropriate Requirements (ARARs) relative to soil management, maintenance of the impermeable barrier and asphalt armor layer, and further obligating adherence to the existing enforced local and state groundwater use restrictions. The impermeable barrier portion of the selected alternative includes asphalt paving as the uppermost layer; this asphalt cover serves not only as an armor protection for the impermeable layer but would also provide for surface use of the property by vehicles. Likely future uses of the site for parking of trucks or heavy equipment would not be incompatible with the remedy and is consistent with current adjacent land use and zoning. Additionally, if conducted consistent with the

indicated Declarations of Restriction, construction of commercial buildings would not be prohibited by the selected remedial alternative nor inconsistent with current area land use and zoning.

## **VII. Summary of Site Risks**

The baseline risk assessment estimates what risk the site poses if no action were taken. It provides the basis for taking action and identifies the contaminants and exposure pathways that need to be addressed by the remedial action. This section of the ROD summarizes the results of the baseline risk assessment for this site.

The reader is referred to the previously presented table Exposure Pathways Quantitatively Assessed in the Baseline Risk Assessment in Section V - Site Characteristic of this ROD and the attached table entitled Concentration Range of Risk Driving Chemicals of Potential Concern. The more significant risk driving carcinogenic chemicals in site soils were found to be chromium (VI), vinyl chloride, a suite of poly-nuclear aromatic hydrocarbons, and cadmium; the non-carcinogenic soil risk was predominantly from 1,1-dichloroethane. Unacceptable risk presented by carcinogenic chemicals in on-site shallow groundwater was presented by vinyl chloride and poly-nuclear aromatic hydrocarbons, with non-carcinogenic risk being presented by manganese, vinyl chloride, and 1,2-dichloroethene. Please see the attached Risk Tables - 1, 2, & 3 detailing the risk driving contribution of all chemicals including the less significant chemicals and each chemicals contribution to the overall site risk.

**Risk Characterization Summary:** For carcinogens, risks are generally expressed as the incremental probability of an individual's developing cancer over a lifetime as a result of exposure to the carcinogen. Excess lifetime cancer risk is calculated from the following equation:

$$\text{Risk} = \text{CDI} \times \text{SF}$$

where:

risk = a unitless probability (e.g.,  $2 \times 10^{-5}$ ) of an individual's developing cancer

CDI = chronic daily intake averaged over 70 years (mg/kg-day)

SF = slope factor, expressed as (mg/kg-day)<sup>-1</sup>.

These risks are probabilities that usually are expressed in scientific notation (e.g.,  $1 \times 10^{-6}$ ). An excess lifetime cancer risk of  $1 \times 10^{-6}$  indicates that an individual experiencing the reasonable maximum exposure ("RME") estimate has a 1 in 1,000,000 chance of developing cancer as a result of site-related exposure. This is referred to as an "excess lifetime cancer risk" because it would be in addition to the risks of cancer individuals face from other causes such as smoking or exposure to too much sun. The chance of an individual's developing cancer from all other causes has been estimated to be as high as one in three. U.S. EPA's generally acceptable risk range for site-related exposures is  $10^{-4}$  to  $10^{-6}$ .

The potential for noncarcinogenic effects is evaluated by comparing an exposure level over a specified time period (e.g., life-time) with a reference dose ("RfD") derived for a similar exposure period. An RfD represents a level that an individual may be exposed to that is not expected to cause

any deleterious effect. The ratio of exposure to toxicity is called a hazard quotient ("HQ"). An HQ of less than 1 indicates that a receptor's dose of a single contaminant is less than the RfD, and that toxic noncarcinogenic effects from that chemical are unlikely. The Hazard Index ("HI") is generated by adding the HQs for all chemical(s) of concern that affect the same target organ (e.g., liver) or that act through the same mechanism of action within a medium or across all media to which a given individual may reasonably be exposed. An HI of less than 1 indicates that, based on the sum of all HQ's from different contaminants and exposure routes, toxic noncarcinogenic effects from all contaminants are unlikely. An HI greater than 1 indicates that site-related exposures may present a risk to human health.

The HQ is calculated as follows:

$$\text{Non-cancer HQ} = \text{CDI/RfD}$$

where: CDI = Chronic daily intake  
RfD = reference dose.

CDI and RfD are expressed in the same units and represent the same exposure period (i.e., chronic, subchronic, or short-term).

The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.

## **VIII. Remedial Action Objectives**

Remedial action objectives provide the foundation upon which remediation alternatives are developed. Remedial action objectives should reflect U.S. EPA's remedy selection expectations, as presented in CERCLA and the National Contingency Plan ("NCP"). CERCLA establishes a preference for remedial actions which permanently and significantly reduce the volume, toxicity or mobility of hazardous substances, pollutants and contaminants. 42 U.S.C. §9621(b). Furthermore, CERCLA states that U.S. EPA shall select a remedial action that is protective of human health and the environment, that is cost effective, and that utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. 42 U.S.C. §9621(b). The NCP provides that where practicable, U.S. EPA expects to treat principle threats, employ engineering controls (e.g. containment) for low-level threats or where treatment is impracticable, use institutional controls to supplement engineering controls, consider using innovative technology, and restore usable groundwaters to beneficial uses wherever practicable. 40 C.F.R. §300.430(a)(1)(iii). The remedial action objectives should reflect the reasonably anticipated or intended future use of the land. As the existing Declaration of Restriction prohibits residential development of the site, and considering the physical nature and setting of the site, remediation to protect future site workers and trespassers, along with mitigation of groundwater contaminant source material are appropriate. Active restoration of groundwater is not practicable in-light of the ubiquitous nature of groundwater contamination in the region and to maintain consistency with Remedial action objectives established for the adjacent SER NPL site.

The following Remedial Action Objectives were established for the IPC site:

- Mitigate the potential risk of exposure to on-site workers and possible trespassers via dermal contact, ingestion or inhalation of hazardous substances from surface soils to protective levels.
- Mitigate the potential for incremental releases of hazardous substances from site soils to area groundwater.
- Restore the aquifer to drinking water standards within a time frame consistent with the regional approach to nearly ubiquitous chlorinated VOC contamination.

The risk identified in the risk assessment relate to three exposure pathways:

- 1) dermal contact with and/or ingestion of contaminants in soil;
- 2) inhalation of contaminants in soil (i.e. dust) and volatilization of contaminants from soil to ambient air followed by inhalation;
- 3) ingestion of contaminants in groundwater or the inhalation of contaminants following volatilization from water during showering or bathing.

Because of the existing state and local prohibitions of groundwater use in the area of the site exposure pathway 3 need not be addressed by the Remedial Action Objectives. The first Remedial Action Objective addresses exposure pathways number 1 and 2. The second Remedial Action Objective will reduce the dependence on monitored natural attenuation of groundwater and time period for natural attenuation to occur.

## **IX. Description of Alternatives**

The Feasibility Study ("FS") presented three remedial action alternatives for detailed review. In addition the FS evaluated an excavation alternative and found excavation to offer minimal additional risk reduction and technically impracticable. Implementation of the excavation alternative was estimated to require construction and operation of the SVE component of Alternative #3 to reduce VOC emission during excavation activity, placement of sheet piling around the entire 2.8 acre site, removal of an estimated 86,000 yds<sup>3</sup> of predominantly foundry sand fill material, and the replacement of an equivalent quantity of off-site fill material. This alternative would not address similar foundry sand fill material underlying adjacent properties on all sides of the IPC site and would have resulted in a "clean island" concept at the site. The foundry sand contaminants ubiquitous to the area of the site are more appropriately managed with the regional approach taken at the adjacent SER site; the excavation alternative was not carried forward through full detailed review. The three remedial action alternatives carried through full evaluation were:

**Alternative #1 - No Action beyond Maintenance of Existing Institutional Controls;**

**Alternative #2 - Institutional Controls, Engineered Barrier, and Monitored Natural Attenuation of Groundwater; and**

**Alternative #3 - Institutional Controls, an Engineered Barrier, Soil Vapor Extraction ("SVE"), and Monitored Natural Attenuation of Groundwater.**

**These three alternatives are further described below:**

**Common Elements:** All three remedial alternatives include the common element of maintaining existing institutional control (deed restriction prohibiting residential development). Additionally Alternatives #2 and #3 include the common elements of further institutional controls including additional property owner implemented deed restrictions to insure protection of construction workers during future on-site excavation by requiring appropriate OSHA training of construction workers, appropriate health & safety plans during construction activities, compliance with ARARs relative to soil management, and further obligating adherence to the existing State of Illinois and City of Rockford groundwater use restrictions, and monitored natural attenuation of groundwater.

**Alternative #1: No Action** - This is the baseline condition required by the NCP for comparison purposes, and assumes that no remedial measures would be implemented at the IPC site. The existing site security fence and existing deed restriction would remain under this alternative. The deed restriction already in place prohibits residential development of this property.

This alternative relies solely on existing institutional controls to prevent contact with site contaminants. The calculated RME scenario risks for this alternative are unacceptable due primarily to the presence of metals in soils.

**Alternative #2: Institutional Controls and Engineered Barrier** - This alternative includes an array of institutional controls, the construction of an engineered barrier over the Site, and monitored natural attenuation of groundwater. The institutional controls will include maintenance of the existing site security fence, property owner implementation of deed restrictions, utilization of existing State and City of Rockford groundwater use restrictions, and routine groundwater monitoring by the PRPs. The engineered barrier will consist of an impermeable geosynthetic liner overlain by asphalt pavement. The barrier will be graded to promote drainage. Groundwater contamination beneath the IPC site will be remediated over time through monitored natural attenuation. The ongoing occurrence of natural attenuation is supported by information in the RI - Soil Gas Survey effort which found significant depletion of soil oxygen concentrations in the area of soil and groundwater contamination. The depletion of soil oxygen is a clear indication that aerobic microbial activity is occurring and the RI further indicated that several non-chlorinated organic substrate compounds (e.g. methane) existed in the soil gas fraction. These organic substrates are conducive to aerobic co-metabolism of chlorinated VOCs. The depletion of soil oxygen is, in certain areas of the site, creating an anaerobic environment which is equally conducive to microbial degradation of chlorinated VOCs. While less clearly confirmed by the RI data the likelihood of the on-going occurrence of anaerobic degradation in these areas is supported by the presence of the anaerobic degradation products of chlorinated VOCs in soil gas (e.g. vinyl chloride). Both degradation mechanisms are well recognized for their capacity to provide natural attenuation. While no site specific modeling of natural attenuation was conducted at the IPC site, the site is within the original study area of the SER site where this modeling was conducted. Monitored natural

attenuation was the selected groundwater remedy for the SER site and no specific differences between the ten (10) square mile SER site study area and the included IPC site are apparent from the RI data. The monitoring program will include not only wells in close proximity to the site but will also include monitoring of the two wells (MW-IPC13(S) & MW-IPC12(S)) near the Rock River, and down gradient of the site. Monitoring of MW-IPC13(S) & MW-IPC12(S) is included to insure no adverse release is occurring to that natural resource during the post-closure monitoring period and to verify the monitored natural attenuation remedy is protective of the Rock River.

**Alternative #3: Institutional Controls, Engineered Barrier and SVE** - This alternative will include all of the elements of Alternative #2 (i.e., implementing institutional controls, installing the engineered barrier, and monitored natural attenuation of groundwater), as well as the installation of a SVE system in the general area of the former surface impoundment. The SVE system would be operated to remove volatile organic compounds from the subsurface soil reducing the potential for continued migration of soil contaminants to groundwater. An exacerbating factor exist relative to design and operations of the SVE component of this alternative because of the existence of the Peoples Avenue Landfill site immediately south of the IPC site; this will be discussed further in Section XX following.

## **X. Comparative Analysis of Alternatives**

Nine criteria are used to evaluate the different remediation alternatives individually and against each other in order to select a remedy. The nine evaluation criteria are: (1) overall protection of human health and the environment; (2) compliance with ARARs; (3) long-term effectiveness and permanence; (4) reduction of toxicity, mobility, or volume of contaminants through treatment; (5) short-term effectiveness; (6) implementability; (7) cost; (8) State/support agency acceptance; and (9) community acceptance. 40 C.F.R. §300.430(e)(9)(iii). This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, noting how it compares to the other options under consideration. The nine evaluation criteria are discussed below. The "Detailed Analysis of Alternatives" can be found in the FS.

**1. Overall Protection of Human Health and the Environment** determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment. Alternative #1 is not protective of human health, nor does it satisfy the remedial action objectives established for the IPC site. This alternative was therefore not considered further. Alternatives #2 and #3 effectively eliminate the majority of the human health risks posed by the site, and restrict access to the regionally contaminated groundwater during the period of monitored natural attenuation. Therefore, both Alternatives #2 and #3 fully satisfy the remedial action objectives, and are protective of human health and the environment.

**2. Compliance with ARARs** evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the IPC site or whether a waiver is justified. Both Alternatives #2 and #3 are expected to meet State and Federal ARARs. A list of the ARARs identified for the selected remedy can be found in the attached **ARAR Tables 1 through 7** and are summarized in Section XIII following.

**3. Long-term Effectiveness and Permanence** considers the ability of an alternative to maintain protection of human health and the environment over time. Alternative #2 does not remove or treat the risks posed by the IPC site soils, and does not actively treat contaminated groundwater. However, the principal threats at the site have already been eliminated as a result of the previous removal activities. The concentrations of VOC contaminants in soils is believed to be sufficiently low so as not to present a continuing source of groundwater contamination, after implementation of Alternative #2, and these soil VOCs will degrade over time as substantiated by soil gas information indicating bio-degradation is occurring and the presence of the break-down products of chlorinated organics.

The concentrations of VOC and SVOC contaminants in groundwater will decline over time through monitored natural attenuation.

Alternative #3 offers the same long-term effectiveness as described for Alternative #2, and offers somewhat enhanced permanence by removing residual VOC contaminants in site soils. However, the metals will remain on-site.

The long-term effectiveness of both Alternatives #2 and #3 can be optimized through effective design and implementation of routine maintenance, and can be verified through the regular site inspections and the CERCLA mandated five year review process. These will ensure that the alternatives will remain effective in the long term.

**4. Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment** evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present. Alternative #2 does not use treatment technologies to reduce the toxicity or volume of the residual contaminants in site soils, but does allow naturally occurring biological processes to continue the degradation of VOCs. Alternative #3 uses SVE treatment technologies to remove VOC contaminants in site soils. Off-site treatment and/or destruction have already been used to mitigate the principle threats posed by wastes formerly present on the IPC site. With both Alternatives #2 and #3, contaminated groundwater would not be treated. However, the concentrations of VOC and SVOC contaminants in groundwater would decline over time through monitored natural attenuation. Both Alternatives #2 and #3 reduce the mobility of site contaminants to groundwater by preventing infiltration of rain water and snow melt water through site soils.

**5. Short-term Effectiveness** considers the length of time needed to implement an alternative and the risk the alternative poses to workers, residents, and the environment during implementation. Construction of Alternative #2 would take approximately one to three months, and could be completed within one construction season. During this period, construction workers and the community could potentially be exposed to site contaminants. However, the construction workers will be working under a site-specific health and safety plan which will specify appropriate dermal and inhalation protection; exposure to the community will be short-term and will be addressed through the exercise of appropriate safety precautions and construction controls.

Construction of Alternative #3 is expected to take two to four months, and could be completed in one construction season. During the construction period, construction workers and the community could potentially be exposed to site contaminants as discussed in Construction of Alternative #2. During operation of the SVE system, vapors may be released to the atmosphere, and spent carbon and condensate may require handling as either solid or hazardous wastes. These risks will be minimized through site-specific health and safety plans, the exercise of appropriate safety precautions, and compliance with approved material handling plans.

A summary of the length of time needed to implement each alternative is presented in the table - **Summary Table of Alternative Cost and Time to Complete** presented at the end of this section of the ROD.

**6. Implementability** considers the technical and administrative feasibility of implementing the alternative such as relative availability of goods and services. Both Alternatives #2 & #3 are readily implementable, and can be constructed using standard construction techniques and materials. However, construction of both are weather dependent and must be undertaken during the summer construction season. After construction the SVE system can be operated year round.

The implementability of the SVE component of Alternative #3 is to some extent in question because of the exacerbating presence of the adjacent Peoples Avenue Landfill and evidence that methane migration from that source is already occurring toward the IPC site; a final decision on the implementability of Alternative #3 can not be made until such time as a design study, including a pilot test of SVE technology has been conducted.

**7. Cost** includes estimated capital and operation and maintenance cost as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

The Net Present Worth of the three evaluated alternatives is as follows:

Alternative #1	not applicable
Alternative #2	\$2,328,000
Alternative #3	\$4,661,000

A summary of capital and operation and maintenance cost for each alternative is presented in the table - **Summary Table of Alternative Cost and Time to Complete** presented at the end of this section of the ROD and the **Cost Tables 1 through 3** attached.

**8. State/Support Agency Acceptance** considers whether the U.S. EPA agrees with the State analyses and recommendations of the RI/FS and the proposed plan. U.S. EPA has reviewed this ROD and supports the preferred remedial alternative.



**9. Community Acceptance** considers whether the local community agrees with the State's analyses and preferred alternative. Comments received on the proposed plan are an important indicator of community acceptance. The proposed plan, presented in a formal public hearing, indicated that Alternative #3 was the option preferred by the Illinois EPA and U.S. EPA with Alternative #2 as a contingent remedy if the SVE component of Alternative #3 was found to be technically impracticable. Comments received from the PRPs (during the public comment period) evaluated, among other factors of the preferred option, the potential for migration of VOCs to groundwater. These comments present a persuasive argument that after implementation of Alternative #2 (the impermeable barrier alternative) the potential for continued migration of VOCs to groundwater will be sufficiently reduced so as not to require the SVE component of Alternative #3. Additionally the comments received present a substantial case that, following construction of the impermeable barrier, VOCs in site soil will not constitute an inhalation hazard via their volatilization to ambient air.

<b>Summary Table of Alternative Cost and Time to Complete</b>			
<b>Alternative #</b>	<b>Alternative #1</b>	<b>Alternative #2</b>	<b>Alternative #3</b>
Estimated Capitol Cost:	\$0	\$985,000	\$1,634,000
Estimated Annual O&M Cost:	\$0	\$1,343,000	\$3,027,000
Estimated Present Net Worth:	\$0	\$2,328,000	\$4,661,000
Estimated Time to Construct:	0	1 - 3 Months	2 - 4 Months
Estimated Cleanup Time for Soils:	Not Applicable	Not Applicable	5 Years
Estimated Cleanup Time for Groundwater:	>200 Years	>200 Years	>200 Years

## **XI. Principle Threat Waste**

All materials that met the definition of principle threat waste were removed from the site during the various removal actions discussed in Section II above.

## **XII. Selected Remedy**

### **Summary of the Rational for the Selected Remedy:**

The selected remedy for the IPC site is **Alternative #2: Institutional Controls and Engineered Barrier, and Monitored Natural Attenuation of Groundwater** as discussed generally above in Section IX with the **SVE component of Alternative #3**: maintained as a contingent remedial option. The decision to implement the SVE component will be made following implementation of **Alternative #2** and a demonstration period (the Five Year Review) verifying that continuing release

of site contaminants to groundwater is still occurring, or has not been substantially reduced. The decision to implement the SVE component will be deferred until the statutorily required Five Year Review and will rely primarily on statistical analysis of groundwater trends at the site. This is a change from the preferred alternative presented in the proposed plan; In the proposed plan Alternative #3 was the preferred alternative. This change in preferred alternative is based on full consideration of public comment received on the proposed plan. This change could have been reasonably anticipated from the analysis of alternatives presented in the proposed plan and specifically the discussion relating to the risk associated with operation of the SVE component.

The selected alternative, with the contingent implementation of the SVE component provides the best balance of trade-offs with respect to the balancing and modifying criteria in that:

- Long Term Effectiveness is plausible in that the principle threat has been removed from the site and following consideration of a supplemental evaluation of the site contaminants likelihood of migration to groundwater. This supplemental evaluation is contained in PRP comments received during the public comment period and is included in the Administrative Record. Verification of Long Term Effectiveness of the selected alternative will be a primary subject of the Five Year Review;
- Reduction of Toxicity, Mobility, or Volume Through Treatment may not be required (base on public comment received during the comment period) to achieve the Remedial Action Objectives. The need for additional reduction in toxicity, mobility, or volume of site contaminants through treatment will be evaluated during the Five Year Review;
- Short Term Effectiveness is provided by the impermeable barrier component and the implementation of the Institutional Controls components of the alternative and need not be delayed to determine the implementability of the SVE component;
- Implementability of the Selected Alternative can be achieved. The Implementability of the SVE component is the subject of significant question as discussed above and in the proposed plan. If the long term effectiveness of Alternative #2 is found lacking, at the Five Year Review, the implementability of the SVE component will be further evaluated without delaying construction of the readily implementable barrier and institutional control components of the remedy;
- Cost of the selected alternative is reasonable considering the substantial risk reduction that will be achieved;
- U.S. EPA acceptance of the selected alternative has been acquired; and
- Community acceptance of Alternative #3 was the subject of significant, and persuasive comment. Alternative #2 was accepted by the public based on the comment received by Illinois EPA.

### **Description of the Selected Remedy:**

Based on the rational presented above Alternative #2 with contingent addition of the SVE component of Alternative #3 following the five year review is the selected remedy for the IPC site. Alternative #2 consist of the following major remedy components:

- **Institutional Controls**

- Maintain the existing Declaration of Restriction already filed with the Winnebago County Recorder which contains the following pertinent language "The following restrictions are hereby placed upon the use of the aforesaid real property (also described herein as "the site") and shall run with the land, so as to prohibit to-wit: a) all residential development of the site; b) all public access to the site except for general industrial use; c) all unpermitted treatment, storage or disposal of waste on the site; and d) all uses of groundwater at the site; all of the above except as required by the Illinois Environmental Protection Agency or the United States Environmental Protection Agency." This Declaration of Restriction was filed March 10, 1995.

- Attach additional Declaration(s) of Restriction to the property including: noting the presence of hazardous substances on the site and the requirement that no excavations or other penetrations of the impermeable barrier be allowed unless the construction workers are trained consistent with 29 CFR 1910.120 ("OSHA") and work under an adequate health and safety plan; that all soil spoil material be managed consistent with a soil management plan consistent with all applicable state and federal laws applicable at the time and that this soil management plan be specific to any planned on-site construction activity, and furthermore that each specific soil management plan be endorsed by a person qualified to write such plans and that each specific soil management plan be provided to the Illinois EPA 30 days prior to initiation of construction activity; that the engineered barrier be maintained consistent with an inspection, maintenance, and corrective action plan to be developed as part to the remedial design and approved by the Illinois EPA.

- Maintain the existing site security fence to enforce item b of the above Declaration of Restriction.

- Supplement existing warning signs around the site perimeter discouraging trespassers and noticing a prohibition of unauthorized excavation.

- Employing existing City of Rockford ordinances and State requirements that restrict the installation of potable groundwater wells within contaminated groundwater, and within minimum setback zones from primary sources. Compliance with these ordinances and State requirements will be reviewed as part of U.S. EPA's mandatory five-year review of CERCLA sites.

- Support Illinois EPA's public education efforts in the SER Area. The ROD for this SER Study Area indicates that the Illinois EPA will rigorously educate the public about the

potential risks associated with using contaminated groundwater in southeast Rockford, and will discourage the use of groundwater for drinking and bathing.

- **Engineered Barrier Over The Entire Site**

- The engineered barrier will be installed to:

- Prevent direct contact with site contaminants, serve as an impermeable barrier to limit exposure to soil vapors, prevent fugitive dust emissions, and reduce storm-water infiltration through site fill, thereby reducing potential releases to groundwater.

The engineered barrier would be installed in addition to the cap which had been constructed over the former surface impoundment. This existing cap was installed in 1992 as part of a removal action, and consists of six inches of compacted clay.

The engineered barrier will be comprised of a flexible membrane liner, with an overlying asphalt surface. From top to bottom, it will generally consist of an 8-inch thick asphalt pavement, underlain by 12 inches of granular base course, a 40 mil flexible membrane liner ("FML"), and a variable thickness grading layer. Geotextile fabric is included in the cost estimate for the engineered barrier as an option to be placed above the FML as further protection dependent upon the aggregate size reasonably available for the granular base course. The barrier will have a center crown, and will be sloped at a 1 to 1.5 percent grade to promote sheet runoff from the asphalt surface. The underlying FML will also be sloped at a 1 to 1.5 percent grade to promote drainage of any water that passes through the asphalt surface. Drainage holes will be provided between the asphalt surface and FML along the site perimeter to minimize the accumulation of moisture between the two barriers. Clean runoff will flow to the railroad right-of-way immediately south of the site. A swale will be formed in the asphalt pavement along the north edge of the site to direct surface water runoff towards Seminary Street. The asphalt pavement and granular base course will support heavy commercial truck traffic, thereby facilitating use of the IPC site for limited commercial purposes.

The FML will serve as the primary impermeable barrier, reducing the infiltration through the site surface. The U.S. EPA Hydrologic Evaluation of Landfill Performance ("HELP") model, versions 3.01 and 3.07, were used to model the infiltration through the site surface under existing conditions and under the new impermeable barrier scenario. The HELP model (Appendix D) indicates that, under current conditions, 6.2 inches of precipitation (472,000 gallons) infiltrates annually through the ground surface at the site. The HELP model predicts that installation of the engineered barrier would reduce infiltration to 0.00014 inches annually (11 gallons). Thus, the engineered barrier reduces infiltration by approximately 99.998 percent. The reduction in infiltration is achieved primarily via the FML in conjunction with regrading of the site to promote efficient drainage, and installation of the relatively impermeable asphalt surface, which further sheds surface water. The clean runoff from the impermeable barrier will be routed to the City of Rockford storm sewer

system catch basin located on Seminary Road, and to the railroad right-of-way located immediately to the south of the site.

The site will be cleared prior to installing the engineered barrier. The six on-site groundwater monitoring wells will be abandoned in accordance with the Illinois Water Well Construction Code. Trees and brush will be cleared, chipped and evenly spread over the site. The disconnected overhead electrical lines, poles and transformers on the north side of the site will be removed and disposed of properly. The personal protective equipment ("PPE"), generated during the 1994 remedial investigation and currently stored on-site in drums, will be removed from the drums and disposed of off-site as solid waste. Investigation-derived waste ("IDW"), also generated during the 1994 remedial investigation and currently stored on-site in drums, will be removed from the drums and buried below the grading layer in the former underground storage tank ("UST") excavation. The USTs were removed in 1991 as part of a removal action, and the excavation was lined with geotextile and backfilled with clean granular material from an off-site source. Existing debris, consisting of piles of concrete, miscellaneous construction debris, and other solid material that is currently on the ground surface and that may interfere with subsequent grading or cover placement, will also be buried in the former UST excavation. Excess granular material will be reused as the grading layer for the new impermeable barrier. The emptied drums will be rinsed and recycled off-site as scrap steel.

During site grading, the surface of the fill will be compacted to provide an adequate surface for the FML. This compaction will also minimize potential settlement from later construction activities and future site operations. The surface for the FML will be cleared of rock, sticks, or debris that could damage the FML. Wood chips from shredded trees and bushes will be covered with a thin layer of fill so that the liner would not be punctured.

- **Monitored Natural Attenuation of site contaminants**

Groundwater contamination beneath the IPC site will be remediated through monitored natural attenuation. The Illinois EPA and U.S. EPA adopted this approach for the SER, noting that the aquifer will not be actively restored to drinking water quality. Illinois EPA and U.S. EPA noted that passive restoration will occur over an extended period of time, with only a small incremental reduction of groundwater contaminants expected on an annual basis.

- **Groundwater monitoring**

At a minimum semi-annual groundwater monitoring will be conducted. The monitoring data will provide an indication of the effectiveness of the engineered barrier in preventing surface water infiltration and provide data to assess the rate of monitored natural attenuation of contaminants in groundwater. However, it is important to note that groundwater quality upgradient of the site is highly variable. Several distinct plumes have been identified that

will migrate through the area over an extended period of time. The source, or sources, of these plumes have not been identified. Groundwater monitoring will be a key component in determining the effectiveness of the impermeable barrier, discussed above, and the decision at the five year review as to the need to implement the contingent option of SVE in addition to the remedy. In order to insure that monitored natural attenuation of groundwater continues to be protective of the Rock River, the two shallow monitoring wells (MW-IPC-12(S) & MW-IPC-13(S)) will remain as part of the post-closure groundwater monitoring program.

For cost estimating purposes, the FS assumed that six existing monitoring wells, located upgradient and down gradient of the site, will be sampled annually for the 30 year post-closure period, and that groundwater samples will be analyzed for inorganics on the Target Analyte List ("TAL"), and VOCs and SVOCs on the Target Compound List ("TCL"). This ROD requires that a minimum of eight monitoring wells be included in the post-closure monitoring program and that these wells will be sampled at a minimum semi-annually. This change is not inconsistent with the -30/+50% accuracy cost estimate indicated by FS guidance.

#### **- Quarterly & Annual Inspection**

Following completion of construction activities, site inspections will be performed on a quarterly basis to document the integrity of the existing site security fence and engineered barrier, the effectiveness of the institutional controls, and the condition of the monitoring well system. On a yearly basis and consistent with the inspection, maintenance and corrective action plan to be developed as part to the remedial design and approved by the Illinois EPA the pavement will be inspected and damaged areas will be repaired. Cracks in the pavement will be filled and the entire surface will be sealed. Results of the inspections will be documented in inspection reports submitted to the Illinois EPA.

#### **- Contingent SVE enhancement**

If, at each five year review cycle, incremental decrease of VOC concentrations is not discernable in groundwater, and this lack of incremental decrease cannot be attributed to up-gradient sources, the implementation of the SVE contingent portion of the remedy should be considered. Prior to implementation of the SVE contingent portion of the remedy a pilot study to support design will be conducted, directed at acquiring not only the standard SVE design parameters of blower size, vacuum well spacing, projected emission rates, etc, but also the overall viability of the SVE component considering the evidence of landfill gas migration contained in the RI. Further discussion as to the implementability of the SVE contingent remedy can be found above in Section X.6 Implementability. Key to assessing the viability of the SVE component will be assessing the viability of passive air wells between the IPC site and Peoples Avenue Landfill to break the SVE vacuum there by precluding or reducing landfill gas encroachment toward or onto the IPC site (note that technologies other than passive air wells may be available or developed prior to the five year review and should also be considered during the SVE pilot test).

If implemented the SVE component of the remedy would consist of a series of gas extraction wells under vacuum created by one or more blowers. The exact number and location of vacuum wells required to implement an effective program can only be determined following assessment of the pilot test results; however the FS projected a series of 32 wells connected to one blower house. The blower house would contain not only the SVE blower but also a moisture knock-out tank to remove entrained soil moisture and two in-line vapor phase granular activated carbon units to reduce air emission of VOCs to acceptable limits. While not specifically discussed in the FS an additional standard component of SVE blower systems is a muffler system to reduce noise emission, this component must be considered during design of the system and installed if appropriate. If implemented the SVE component would have a projected operational period of five (5) years.

#### **Summary of the Estimated Remedy Cost:**

Capitol cost for the selected remedy is estimated to be \$985,000; Year 1 Operation & Maintenance Cost are estimated to be \$87,155; Total Present Worth Cost are estimated to be \$2,328,000. Detailed cost information on all of the above remedy components can be found in the attached Capitol Cost, Year 1 Operation & Maintenance Cost, and Summary and Total Present Worth Cost tables which are attached.

#### **Expected Outcomes of the Selected Remedy:**

**Availability of Site for Productive Reuse:** The land currently occupied by the IPC site would be available for development, consistent with the IC component of the remedy, immediately following completion of the impermeable barrier. Completion of the impermeable barrier, dependent upon construction constraints, could reasonably be expected to be completed within 3 months of remedial construction start. Groundwater use, because of existing local ordinances and state set-back requirements is not anticipated; the remediation of groundwater impacted by releases from the IPC site, by monitored natural attenuation, is expected to require in excess of 200 years. This period will likely be extended for groundwater in the area of the site because of the plume of contaminants migrating toward the site from up-gradient sources as identified in the RI and as discussed previously in Section VI above.

**Cleanup Levels:** Because the selected remedy is a containment remedy with monitored natural attenuation no specific cleanup levels for groundwater are specified in this ROD. If the contingent remedy SVE component of the selected remedy is implemented specific cleanup levels may be specified at that time. However, since the singular intended purpose of the SVE component is to substantially reduce the soil VOC sources of groundwater contamination, operation of the SVE system to sustained asymptotic removal rates is the expectation of this ROD.

It should be noted that the selected remedy may change somewhat as a result of the remedial design and construction processes. Changes to the selected remedy described in the ROD will be documented using a technical memorandum in the Administrative Record, and Explanation of Significant Difference (ESD), or a ROD amendment.

### **XIII. Statutory Determinations**

Under CERCLA §121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with ARARs (unless a statutory waiver is justified), are cost-effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes as a principal element and a bias against off-site disposal of untreated wastes. The following sections discuss how the selected remedy meets these statutory requirements.

#### **Protection of Human Health and the Environment:**

As a result of the various removal actions discussed in Section II above, construction of the impermeable barrier, maintenance of existing and placement of additional institutional controls on the site, and monitored natural attenuation of groundwater the selected remedy will adequately protect human health and the environment. Exposure levels will be reduced to U. S. EPA's generally acceptable risk range of  $10^{-4}$  to  $10^{-6}$  for carcinogenic risk and below the HI of 1 for non-carcinogens. The implementation of the selected remedy will not pose unacceptable short-term risk or cross-media impacts and there is no evidence to indicate that ecological risks currently exist at the site or will be created by the selected remedy.

The various removal actions taken at the site have effectively removed all principle threats from waste at the site. The impermeable barrier will serve to protect site workers from dermal contact with contaminated soils, effectively eliminate volatilization of contaminants to the breathing zone, and significantly reduce infiltration of precipitation and snow melt through the contaminated soils. To insure that protection is maintained by the impermeable barrier this unit is armored with asphalt paving and the institutional controls portion of the selected remedy contains adequate provisions for maintenance of this armor layer; requires that any future excavation through the impermeable layer be performed by construction workers properly trained to work with contaminated soils and in environments potentially containing VOCs by requiring that such work be performed by workers trained consistent with 29 CFR 1910.120; and requires that any excavation of soil is managed in compliance with all applicable state and federal laws. An existing Declaration of Restriction attached to the deed of the property prohibits residential development of the site in the future.

#### **Compliance with Applicable or Relevant and Appropriate Requirements:**

The selected remedy consisting of an impermeable barrier, institutional controls, monitored natural attenuation of groundwater, and the contingent SVE component are expected to comply with all ARARs identified for the alternative. No waiver of ARARs is required for the selected alternative. The ARARs are presented below and in more detail in the ARAR Tables 1 through 7 attached.



Chemical, Location, and Action-Specific ARARs include the following:

- Safe Drinking Water Act MCL (40 CFR Part 141), which specify acceptable concentration levels in groundwater that serves as a potential drinking water aquifer
- Clean Water Act FWQC (40 CFR Part 403).
- Clean Water Act National Pollution Discharge Elimination System ("NPDES") Permit Program (40 CFR 122)
- RCRA Subtitle D requirements for lagoon closure (40 CFR 264.), which specify a cap with a permeability less than or equal to the permeability of any bottom liner or natural subsoils present at the site.
- Post-Closure and Monitoring requirements for 30 years (40 CFR 264).
- RCRA requirements for waste management (40 CFR 264, 268, 270).
- Clean Air Act National Emission Standards (40 CFR 61, 63)
- Clean Air Act Implementation of State Plans (40 CFR 52)
- Federal Water Pollution Control Act Discharge to POTW requirements (40 CFR 403)
- Illinois Groundwater Quality Standards (35IAC 620)
- Illinois Ambient Air Quality Standards (35 212 & 215)
- Illinois Organic Material Emission Standards and Limitations (35IAC 215)
- Illinois Standards for New Solid Waste Landfills (35IAC 811)
- Illinois Air Pollution Permits & General Standards (35IAC 201)
- Illinois Air Pollution Alternative Control Strategies (35IAC 202)
- Illinois Water Pollution Introduction & Pretreatment Programs (35IAC 301, 310)
- Illinois Water Pollution Sewer Discharge Criteria (35IAC 307)
- Illinois Sound Emission Standards and Limitations (35IAC 900 & 901)

·Illinois Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities (35IAC 724, 725)

·Illinois Dept. Of Public Health, Illinois Water Well Construction Code (Section 920)

·Illinois Environmental Protection Act Title IV, Section 14.1

·Illinois Public Water Supply regulations (35IAC 653)

Other Criteria, Advisories, or Guidance To Be Considered ("TBCs") for This Remedial Action:

·Illinois Tiered Approach to Clean-up Objectives (35IAC 742)

·City of Rockford, Water Division Ordinance, Section #31-10

In implementing the selected remedy, the Illinois EPA, and U.S. EPA have agreed to consider a number of non-binding criteria that are to be considered (TBCs). These include the guidance on designing RCRA caps, Draft RCRA Guidance Document, Landfill Design, Liner Systems and Final Cover, issued June 1982. The guidance on designing RCRA caps includes specifications to be followed in constructing and maintaining a RCRA cap.

#### **Cost-Effectiveness:**

In the Illinois EPA's judgment the selected remedy is cost-effective and represents a reasonable value for the money to be spent. In making this determination, the following definition was used: "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness." (NCP §300.430(f)(1)(ii)(D)). This was accomplished by evaluating the "overall effectiveness" of those alternatives that satisfied the threshold criteria (i.e., were both protective of human health and the environment and ARAR-compliant). Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction in toxicity, mobility, and volume through treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost-effectiveness. The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs and hence this alternative represents a reasonable value for the money to be spent.

The estimated total present worth cost of the selected remedy is \$2,328,000. Alternative #3 is \$2,333,000 more expensive, achieves minimal additional short-term risk reduction, and may not be implementable, therefore the selected remedy is cost-effective. If at the five year review it is determined that the selected remedy is not effective in prohibiting further migration of VOCs from site soil to groundwater this ROD provides for the implementation of the SVE component of Alternative #3. As part of that five year review cost effectiveness of the SVE component, along with implementability will be revisited if implementation is anticipated.

**Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable ("MEP"):**

While the selected remedy does not adhere with the preference for treatment as a principle element of the remedy, contingent provision is contained in the selected remedy to implement a treatment alternative (e.g. SVE) if the impermeable barrier is found to not provide adequate protection of groundwater at the time of the five year review. Information presented during the public comment period pleads a persuasive case that active remediation of soil VOCs is likely not required to effectively eliminate site soils from further contribution to groundwater contamination and may not meet the cost-effectiveness requirement of remedy selection. Excavation and on-site treatment of site soils was evaluated and found to be impracticable.

**Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable**

The Illinois EPA has determined that the selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the site. Of those alternatives that are protective of human health and the environment and comply with ARARs, the Illinois EPA has determined that the selected remedy provides the best balance of trade-offs in terms of the five balancing criteria, while also considering the statutory preference for treatment as a principal element and bias against off-site treatment and disposal and considering U.S. EPA and community acceptance.

Previous removal actions at the site remediated source materials constituting principal threats at the site. The selected remedy satisfies the criteria for long-term effectiveness by placing an impermeable barrier over residual soil contamination; implementing institutional controls to prohibit residential development, restrict contact with site soils, and preclude use of on-site groundwater (use of off-site contaminated groundwater is prohibited by existing state law & local ordinances); and monitored natural attenuation of groundwater consistent with the regional approach taken at the SER site. If the impermeable barrier and monitored natural attenuation approach to reducing or precluding continued site contributions to groundwater contamination are found inadequate at the five year review this ROD provides for implementation of the SVE component remedy to actively treat residual VOC contamination in site soils.

**Preference for Treatment as a Principal Element**

This ROD provides for implementation of the SVE component if the impermeable barrier is found insufficient. The selected remedy in this ROD does not contain an active current treatment component. The statutory preference for remedies that employ treatment as a principal element is not satisfied, however, based on the technical impracticability of excavation for treatment and the high probability of success for containment and natural attenuation of the remaining lower level threats at this site, active treatment is not currently warranted; if the impermeable barrier is found insufficient in protecting groundwater the selected remedy allows implementation of the SVE component and at that time the statutory preference for remedies that employ treatment as a principal element would be satisfied.

### **Five-Year Review Requirements**

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on-site above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of remedial action to ensure that the remedy is, or will be, protective of human health and the environment.

### **XIV. Documentation of Significant Changes**

The proposed plan was released for public comment in July of 1999. The plan identified Alternative # 3, impermeable barrier, institutional controls, soil vapor extraction ("SVE"), and monitored natural attenuation of groundwater as the preferred alternative for remediation. Alternative #2, impermeable barrier, institutional controls, and monitored natural attenuation of groundwater was also considered and was presented to the public as a contingent remedy if SVE proved to be not implementable due to adverse impacts by landfill gas encroachment toward the site from the near-by Peoples Avenue Landfill. During the public comment period, new assessment of soil data from the RI was presented which indicates that the SVE component of Alternative #3 may not be necessary to achieve the remedial objectives for the site. Based on this new information, summarized in the Responsiveness Summary and available in the Administrative Record file for the site, the Illinois EPA and U.S. EPA decided to select Alternative #2, impermeable barrier, institutional controls, and monitored natural attenuation of groundwater, with SVE component of Alternative #3 as a contingent component as the selected remedy for the IPC site; a final decision on implementation of the SVE is deferred to the five year review. The Illinois EPA and U.S. EPA believe that this change in the selected remedy, from that proposed could have been reasonably anticipated based on information presented in the proposed plan and contained in the Administrative Record File for the site. During the five year review the semi-annual groundwater monitoring data will be assessed to determine if Alternative #2 is adequately mitigating the site's contribution to groundwater contamination. If the semi-annual groundwater monitoring data fails to show mitigation of the site's contribution, implementation of the SVE component will be reconsidered. If a decision to implement the SVE component is made by Illinois EPA and U.S. EPA this decision will be documented in a ESD prior to implementation and this ESD and information supporting the decision will be incorporated into the Administrative Record File for the site.

Concentration Range of Risk Driving Chemicals of Potential Concern									
	Surface Soil		Deep Soil On-Site	Fill		Ground-Water (upl)			
	On-Site	Background		On-Site	Off-Site	On-Site & Downgradient	Upgradient		
Metals									
Arsenic	2.9J - 13.1J mg/kg	3.6J - 3.9J mg/kg	555B - 2.55J mg/kg	7.7 - 20.9SJ mg/kg	2.1 - 4.75 mg/kg	2.9 - 16.7 mg/kg	2.1 mg/kg		
Beryllium	1.8 mg/kg	ND mg/kg							
Cadmium	2.4 - 355 mg/kg	2.8 - 3.3 mg/kg	ND mg/kg	20.8J - 271 mg/kg	4.9 - 5.95 mg/kg				
Chromium	11.6 - 590 mg/kg	12.7 - 15.8 mg/kg	4.2 - 11.75 mg/kg	70.5 - 805 mg/kg	37J - 55.3J mg/kg				
Copper	9.9 - 3970 mg/kg	8.5 - 11.8 mg/kg	7.8 - 58.25 mg/kg	645J - 2150 mg/kg	34.2 - 99.95 mg/kg				
Manganese	843B - 76100 mg/kg	1790 - 3850 mg/kg	78.1 - 128.5 mg/kg	361J - 1550 mg/kg	1183.5 - 1620 mg/kg	21 - 3240 mg/kg			
Volatiles						26000 - 160000 mg/kg	ND mg/kg		
Acetone				**see below					
Chloroform									
1,1 Dichloroethane	2.5J - 480J ug/kg	ND ug/kg	3J ug/kg	2J - 7300 ug/kg	ND ug/kg				
1,1 Dichloroethene						2J - 28 ug/kg	2J - 34 ug/kg		
1,2 Dichloroethene									
Methylene Chloride			2J ug/kg	2J - 1300J ug/kg	ND ug/kg				
Tetrachloroethene						2J - 17 ug/kg	2J - 100 ug/kg		
1,1,2 Trichloroethane									
Trichloroethene	2J - 19500J ug/kg	ND ug/kg	5J ug/kg	1100J - 1700J ug/kg	ND ug/kg				
Vinyl Chloride				**see below		2J - 100 ug/kg	ND ug/kg		
PCBs/Pesticides									
PCBs (total)	521JP - 1121JP ug/kg	ND ug/kg							
Heptachlor epoxide	53JP - 19JP ug/kg	38JP - 63JP ug/kg							
PAHs									
Carbogenic (total)	106 - 38100 ug/kg	ND - 1078 ug/kg	ND - 967 ug/kg	1870 - 7300 ug/kg	4120 - 16640 ug/kg				
Non-Carbogenic (total)	171 - 53149 ug/kg	80 - 1043 ug/kg	ND - 1222 ug/kg	8440 - 129000 ug/kg	4329 - 5211 ug/kg				
SemiVolatiles	51J - 9500J ug/kg	38J - 46J ug/kg							

D - Compound detected in secondary dilution factor

J - Indicates an estimated concentration

ND - Not Detected

P - Indicates value > 25% of difference between two GC columns, Lower value reported

S - The reported value was determined by the Method of Standard Additions

\*\* Compounds detected only in Soil Gas

Chloroform 16000 ppbv

Vinyl Chloride 190000E - 390000E ppbv

E - Indicates an estimated concentration

# Risk Table - 1

## Chemical Risk Drivers for the Soil Pathways

Current On-site Worker		Future Resident	
Cancer Risk <sup>a</sup> = $5 \times 10^{-5}$ to $5 \times 10^{-4}$		Adult Cancer Risk <sup>a</sup> = $4 \times 10^{-4}$ to $1 \times 10^{-3}$	
RME Risk Drivers		RME Risk Drivers	
Chemical <sup>b</sup>	Risk	Chemical <sup>b</sup>	Risk
Chromium (VI)	$3 \times 10^{-4}$ (59%)	Chromium (VI)	$5 \times 10^{-4}$ (51%)
Vinyl chloride	$2 \times 10^{-4}$ (32%)	Vinyl chloride	$3 \times 10^{-4}$ (28%)
PNAs	$2 \times 10^{-5}$ (3%)	PNAs	$1 \times 10^{-4}$ (13%)
Cadmium	$1 \times 10^{-5}$ (3%)	Arsenic	$3 \times 10^{-5}$ (3%)
Arsenic	$9 \times 10^{-6}$ (2%)	Cadmium	$2 \times 10^{-5}$ (2%)
Chloroform	$4 \times 10^{-6}$ (1%)	PCBs	$9 \times 10^{-6}$ (2%)
PCBs	$2 \times 10^{-6}$ (<1%)	Chloroform	$6 \times 10^{-6}$ (1%)
		Beryllium	$5 \times 10^{-6}$ (1%)
		Bis(2-ethylhexyl)phthalate	$3 \times 10^{-6}$ (<1%)
		Heptachlor epoxide	$2 \times 10^{-6}$ (<1%)
		Methylene chloride	$1 \times 10^{-6}$ (<1%)
Noncancer HI <sup>a</sup> = 11 to 20		Child Noncancer HI <sup>a</sup> = 72 to 126	
RME HI Drivers		RME HI Drivers	
Chemical <sup>b</sup>	HI	Chemical <sup>b</sup>	HI
1,1-Dichloroethane	18 (90%)	1,1-Dichloroethane	107 (85%)
		Trichloroethene	4 (3%)
		Cadmium	4 (3%)
		Manganese	3 (2%)
		Chromium (VI)	1 (1%)
		Copper	1 (1%)
<sup>a</sup> The range given is for the MLE and RME scenarios, respectively. <sup>b</sup> Exposure to VOCs such as vinyl chloride and 1,1-dichloroethane is via the inhalation pathway. Exposure to the other chemicals is via ingestion and dermal absorption of soil and inhalation of dust particles.			

## Risk Table - 2

### Chemical Risk Drivers for the Shallow Groundwater Pathways (Future Resident Population)

Shallow Upgradient Groundwater		Shallow Site Groundwater	
Adult Cancer Risk <sup>a</sup> = $3 \times 10^{-5}$ to $4 \times 10^{-4}$		Adult Cancer Risk <sup>a</sup> = $3 \times 10^{-4}$ to $3 \times 10^{-3}$	
RME Risk Drivers		RME Risk Drivers	
Chemical <sup>b</sup>	Risk	Chemical <sup>b</sup>	Risk
1,1-Dichloroethene	$2 \times 10^{-4}$ (60%)	Vinyl chloride	$2 \times 10^{-3}$ (86%)
Tetrachloroethene	$6 \times 10^{-5}$ (16%)	PNAs	$2 \times 10^{-4}$ (8%)
Bis(2-ethylhexyl)phthalate	$5 \times 10^{-5}$ (12%)	1,1-Dichloroethene <sup>c</sup>	$9 \times 10^{-5}$ (4%)
Arsenic	$4 \times 10^{-5}$ (11%)	Arsenic	$7 \times 10^{-5}$ (3%)
1,1,2-Trichloroethane	$1 \times 10^{-6}$ (<1%)	Tetrachloroethene <sup>c</sup>	$5 \times 10^{-6}$ (<1%)
Child Noncancer HI <sup>a</sup> = 2 to 9		Child Noncancer HI <sup>a</sup> = 7 to 23	
RME HI Drivers		RME HI Drivers	
Chemical <sup>b</sup>	HI	Chemical <sup>b</sup>	HI
Manganese	6 (67%)	Manganese	16 (70%)
1,2-Dichloroethene	1 (11%)	Vinyl chloride	4 (17%)
		1,2-Dichloroethene <sup>c</sup>	2 (9%)
<sup>a</sup> The range given is for the MLE and RME scenarios, respectively. <sup>b</sup> Exposures to these chemicals are via the ingestion pathway. <sup>c</sup> The incremental risk (i.e., site risk minus upgradient risk) is insignificant (i.e., cancer risk < $10^{-6}$ or HI < 1.0) for this chemical.			

### Risk Table - 3

#### Chemical Risk Drivers for the Deep Groundwater Pathways (Future Resident Population)

Deep Upgradient Groundwater		Deep Site Groundwater	
Adult Cancer Risk <sup>a</sup> = $2 \times 10^{-5}$ to $3 \times 10^{-4}$		Adult Cancer Risk <sup>a</sup> = $1 \times 10^{-5}$ to $2 \times 10^{-4}$	
RME Risk Drivers		RME Risk Drivers	
Chemical <sup>b</sup>	Risk	Chemical <sup>b</sup>	Risk
1,1-Dichloroethene	$3 \times 10^{-4}$ (82%)	1,1-Dichloroethene <sup>c</sup>	$2 \times 10^{-4}$ (99%)
Tetrachloroethene	$4 \times 10^{-5}$ (12%)	1,1,2-Trichloroethane <sup>c</sup>	$1 \times 10^{-6}$ (1%)
Bis(2-ethylhexyl)phthalate	$2 \times 10^{-5}$ (5%)	Tetrachloroethene <sup>c</sup>	$1 \times 10^{-6}$ (1%)
1,2-Dichloroethane	$2 \times 10^{-6}$ (1%)		
1,1,2-Trichloroethane	$1 \times 10^{-6}$ (<1%)		
Child Noncancer HI <sup>a</sup> = 2 to 7		Child Noncancer HI <sup>a</sup> = 3 to 14	
RME HI Drivers		RME HI Drivers	
Chemical <sup>b</sup>	HI	Chemical <sup>b</sup>	HI
Manganese	4 (57%)	Acetone	7 (50%)
1,2-Dichloroethene	1 (14%)	Manganese <sup>c</sup>	4 (29%)
Trichloroethene	1 (14%)		
<sup>a</sup> The range given is for the MLE and RME scenarios, respectively. <sup>b</sup> Exposures to these chemicals are via the ingestion pathway. <sup>c</sup> The incremental risk (i.e., site risk minus upgradient risk) is insignificant (i.e., cancer risk < $10^{-6}$ or HI < 1.0) for this chemical.			



**ARAR - TABLE 1**

Chemical Specific ARARs for Ground-water Media					
Authority	Requirement	Status	Prerequisite	Citation	Action to be Taken to Attain Requirement
Federal Regulatory Requirement	Safe Drinking Water Act of 1974 ("SDWA") <ul style="list-style-type: none"> <li>• MCLs</li> <li>• MCLGs</li> <li>• Secondary MCLs</li> </ul>	Relevant & Appropriate	Use of Ground-water in public water supply systems	40CFR 141.11-141.16 40CFR 141.50-141.51 40CFR 143.3	Remediate Ground-water by Monitored Natural Attenuation
State Regulatory Requirement	Illinois Ground-water Quality Standards	Applicable	Ground-water is impacted	35IAC 620.410 unless modified in accordance with the substantive requirements of 35IAC 620.250 to 35IAC 620.420 or 35IAC 620.450	Remediate Ground-water by Monitored Natural Attenuation
State Regulatory Requirement	Establish a Ground-water Management Zone ("GMZ")	Applicable	Ground-water is impacted above Illinois Class I standards	35IAC 620.250	Apply for establishment of a GMZ

**ARAR - TABLE 2**

Chemical Specific ARARs for Air Media					
Authority	Requirement	Status	Prerequisite	Citation	Action to be Taken to Attain Requirement
State Regulatory Requirement	Discharge of air emissions	Applicable for Construction	Limitations for air emissions of organic material from stationary sources in other than Chicago and Metro East area counties	Ambient Air Quality Standard 50.6 35IAC Part 212 35IAC Part 215	Design, & monitor, construction to comply

**ARAR - TABLE 3a**

Action Specific ARARs - Impermeable Barrier					
Authority	Requirement	Status	Prerequisite	Citation	Action to be Taken to Attain Requirement
Federal Regulatory Requirement	<p>Placement of a cap over hazardous waste (e.g., closing a landfill, or closing a surface impoundment or waste pile as a landfill, or similar action) requires a cover designed and constructed to:</p> <ul style="list-style-type: none"> <li>oProvide long-term minimization of infiltration of liquids through the capped area. <i>Function with minimum maintenance.</i></li> <li>oPromote drainage and minimize erosion or abrasion of the cover.</li> <li>oAccommodate settling and subsidence so that the cover's integrity is maintained.</li> <li>oHave a permeability less than or equal to the permeability of any bottom liner layer system or natural subsoils present.</li> </ul>	Relevant & Appropriate	<p>RCRA waste is covered with a cap for the purpose of leaving it behind after the remedy is selected.</p> <p>Significant management (treatment, storage, or disposal) of hazardous waste will make requirements applicable, capping without disturbance will not make requirements applicable, but technical requirements may be relevant and appropriate.</p>	RCRA, 40 CFR 264.228(a) (Surface Impoundments)	Design and construct impermeable barrier to comply
Federal Regulatory Requirement	Restrict post-closure use of property as necessary to prevent damage to the cover..	Relevant & Appropriate		RCRA 40 CFR 264.117(c)	Place institutional controls on future use to comply
Federal Regulatory Requirement	Prevent run-on and run-off damaging cover	Relevant & Appropriate		RCRA 40 CFR 264.228(b) 40 CFR 264.310(b)(4)	Design and construct impermeable barrier to comply

**ARAR - TABLE 3b**

Action Specific ARARs - Impermeable Barrier					
Authority	Requirement	Status	Prerequisite	Citation	Action to be Taken to Attain Requirement
Federal Regulatory Requirement	Disposal or decontamination of equipment, structures, and soil.	Relevant & Appropriate	Equipment exposed to contaminated materials.	RCRA 40CFR 264.111	Design and construct remedy to comply
Federal Regulatory Requirement	Stabilization of remaining waste and waste residues to support cover.	Relevant & Appropriate	Closure with waste left in-place	RCRA 40CFR 264.228(a)(2) & 40CFR 264.258(b)	Design and construct remedy to comply
Federal Regulatory Requirement	Stabilization of remaining waste and waste residues to support cover.	Relevant & Appropriate	Closure with waste left in-place	RCRA 40CFR 264.310(a)	Design and construct remedy to comply
Federal Regulatory Requirement	Post-closure care and ground-water monitoring	Relevant & Appropriate	Closure with waste left in-place	RCRA 40CFR 264.310(b)(1)(3)	Post-closure monitoring of remedy
Federal Regulatory Requirement	Develop fugitive and odor emission control plan for this action if existing site plan is inadequate	Relevant & Appropriate	Regrading of waste along the property boundaries in order to make physical room for the impermeable barrier	CAA, Section 101 <sup>a</sup> and 40CFR 52 <sup>a</sup>	Design and construct remedy to comply
State Regulatory Requirement	File the substantive content of construction and operating permit application with state to include estimation of emission rates for each pollutant expected.	Applicable	This information is applicable to new emission sources.	35IAC 201.142 35IAC 201.143	File appropriate information following design & prior to construction
State Regulatory Requirement	Meet the 8 lb/hr rule for VOCs or install control equipment with greater than 85% control efficiency	Applicable	Sources emitting VOCs outside the Chicago Metropolitan Area.	35IAC 215.301 35IAC 215.302	Design and construct remedy to comply

**ARAR - TABLE 3c**

<b>Action Specific ARARs - Impermeable Barrier</b>					
<b>Authority</b>	<b>Requirement</b>	<b>Status</b>	<b>Prerequisite</b>	<b>Citation</b>	<b>Action to be Taken to Attain Requirement</b>
Federal Regulatory Requirement	Include with construction substantive requirements application information the following: o Modeled impact analysis of source emissions o A Best Available Control Technology (BACT) review for the source operation	Applicable	Applicable to sources meeting the "major" source criteria per the Prevention of Significant Deterioration (PSD) Program in attainment areas.	CAA, 40CFR 52	File appropriate information following design & prior to construction
Federal Regulatory Requirement	Verify that emissions of vinyl chloride and benzene do not exceed levels expected from sources in compliance with hazardous air pollution regulations.	Applicable		CAA, 40CFR 61*	Monitor emissions as appropriate
State Regulatory Requirement	Procedure to exclude exposure routes from further consideration.	To Be Considered	Contaminated Soil or ground-water is present	35IAC 742.300 35IAC 742.305 35IAC 742.310 35IAC 742.315	Attach appropriate institutional controls onto property deed
State Regulatory Requirement	Impermeable barrier is designed to prevent the infiltration of precipitation or other surface water, impede the ingestion or inhalation of contaminants.	To Be Considered	Placement of impermeable barrier to exclude exposure pathways.	35IAC 742.200	Design impermeable to comply & attach appropriate institutional controls to maintain
State Regulatory Requirement	Establishes general nuisance noise control requirements for construction related activities	Applicable	Generation of noise during construction	35IAC 900.102	Design and monitor construction to comply

**ARAR - TABLE 4**

Action Specific ARARs - Plugging and Sealing Drill Holes					
Authority	Requirement	Status	Prerequisite	Citation	Action to be Taken to Attain Requirement
State Regulatory Requirement	Establishes minimum requirements for plugging and sealing drill holes.	Applicable	Abandoning monitoring wells	35IAC 811.316	Abandon wells in compliance

**ARAR - TABLE 5**

Action Specific ARARs - Storm-water Management					
Authority	Requirement	Status	Prerequisite	Citation	Action to be Taken to Attain Requirement
Federal Regulatory Requirement	Storm-water management during construction	Applicable	Precipitation event during construction	40CFR 122.44	Design and implement construction to comply

**ARAR - TABLE 6a**

Action Specific ARARs - On-Site Treatment (e.g. SVE)						
Authority	Requirement	Status	Prerequisite	Citation	Action to be Taken to Attain Requirement	
Federal Regulatory Requirement	Design system to provide odor-free operation	Applicable	Emission of gases from the SVE system	CAA 110* and 40CFR 52*	Design and operate system to comply	
State Regulatory Requirement	File the substantive content of construction and operating permit application with state to include estimation of emission rates for each pollutant expected.	Applicable	This information is applicable to new emission sources.	35IAC 201.142 35IAC 201.143	File appropriate information following design & prior to construction	
Federal Regulatory Requirement	Include with construction substantive requirements application information the following: o Modeled impact analysis of source emissions o A Best Available Control Technology (BACT) review for the source operation	Applicable	Applicable to sources meeting the "major" source criteria per the Prevention of Significant Deterioration (PSD) Program in attainment areas.	CAA, 40CFR 52	Submit required information	
Federal Regulatory Requirement	Verify that emissions of vinyl chloride and benzene do not exceed levels expected from sources in compliance with hazardous air pollution regulations.	Applicable		CAA, 40CFR 61*	Design and operate system in compliance	
State Regulatory Requirement	Meet the 8 lb/hr rule for VOCs or install control equipment with greater than 85% control efficiency	Applicable	Sources emitting VOCs outside the Chicago Metropolitan Area.	35IAC 215.301 35IAC 215.302	Design and construct remedy to comply	
State Regulatory Requirement	Site specific remediation objectives may be obtained due to impracticability of remediation	To Be Considered	Extraction of contaminants from soils reaches asymptotic levels.	35IAC 742.920	Operate system to asymptotic levels, request acknowledgement that remedy segment is complete	

**ARAR - TABLE 6b**

<b>Action Specific ARARs - On-Site Treatment (e.g. SVE)</b>					
<b>Authority</b>	<b>Requirement</b>	<b>Status</b>	<b>Prerequisite</b>	<b>Citation</b>	<b>Action to be Taken to Attain Requirement</b>
Federal Regulatory Requirement	Treatment of wastes subject to ban on land disposal must attain levels achievable by best demonstrated available technology (BADT) for each hazardous constituent in each listed waste.	Applicable	Disposal of residual wastes from the SVE system	RCRA, 40CFR 268	Manage waste to comply
Federal Regulatory Requirement	New treatment, storage, or disposal of hazardous waste prohibited. Placement of non-containerized or bulk liquid hazardous waste prohibited.	Applicable	Disposal of residual wastes from the SVE system	RCRA, 40CFR 264.18 <sup>b</sup>	Manage waste to comply
Federal Regulatory Requirement	RCRA permit-by-rule requirements must be complied with for discharges of RCRA hazardous waste to POTWs by truck, rail, or dedicated pipe.	Applicable	Discharge of treatment system effluent to a POTW	40CFR 270.60	Manage waste to comply
Federal Regulatory Requirement	<p>Pollutants that pass through the POTW without treatment, interfere with the POTW operation, or contaminate POTW sludge are prohibited.</p> <p>Specific prohibitions include discharges that:</p> <ul style="list-style-type: none"> <li>o Create a fire or explosion hazard in the POTW.</li> <li>o Are corrosive (pH&lt;5.0)</li> <li>o Are discharged at a flow rate and/or concentration that will result in interference.</li> <li>o Increase the temperature of wastewater entering the treatment plant that would result in interference; but in no case raise the POTW influent temperature above 104°F (40°C).</li> <li>o discharge must comply with local POTW pretreatment program, including POTW-specific pollutants, spill prevention program requirements, and reporting and monitoring requirements.</li> </ul>	Applicable	Discharge of treatment system effluent to a POTW	Federal Water Pollution Control Act, 40CFR 403.5	Design system, and manage waste streams destined to POTW to comply



**ARAR - TABLE 6c**

Action Specific ARARs - On-Site Treatment (e.g. SVE)					
Authority	Requirement	Status	Prerequisite	Citation	Action to be Taken to Attain Requirement
State Regulatory Requirement	Illinois Pretreatment Regulations provide pretreatment standards and instructions for pretreatment permits for all discharges to a POTW. Pretreatment standards will be established by the POTW in addition to the requirements of 35IAC 307, Subpart B. Pretreatment monitoring and reporting requirements are established during the permitting process. Permits are required from the Illinois EPA when the Illinois EPA is acting as the control authority; this regulation does not apply if the POTW is the control authority.	Applicable	Discharge of treatment system effluent to a POTW.	35IAC 307.1101-1103  35IAC 310.201-310.233  35IAC 301.400-310.444  35IAC 310.601-310.634	Apply for pre-treatment discharge authorization to POTW and comply with conditions set for in the permit.
State Regulatory Requirement	Prevent introduction of pollutants which will interfere with the operation of POTWs.	Applicable	Discharge of treatment system effluent to a POTW.	35IAC 201(a)(c) and 202 (this maybe 301&302?)	Design and operate system to a manner to comply
Federal Regulatory Requirement	Sample preservation procedures, container materials, and maximum allowable holding times.	Relevant & Appropriate	Collection of samples for verification analysis.	40CFR 136	Conduct sampling in accordance with O&M Sampling Plan, QAPP, and this ARAR
State Regulatory Requirement	File the substantive content of construction and operating permit application with state to include estimation of emission rates for each pollutant expected.	Applicable	This information is applicable to new emission sources.	35IAC 201.142	Submit appropriate information as part of design and construction approval effort
State Regulatory Requirement	Meet the 8 lb/hr rule for VOCs or install control equipment with greater than 85% control efficiency	Applicable	Sources emitting VOCs outside the Chicago Metropolitan Area.	35IAC 215.301 35IAC 215.302	Design and construct remedy to comply
Federal Regulatory Requirement	Verify that emissions of vinyl chloride and benzene do not exceed levels expected from sources in compliance with hazardous air pollution regulations.	Applicable		CAA, 40CFR 61*	Monitor emissions as appropriate

**ARAR - TABLE 6d**

<b>Action Specific ARARs - On-Site Treatment (e.g. SVE)</b>					
<b>Authority</b>	<b>Requirement</b>	<b>Status</b>	<b>Prerequisite</b>	<b>Citation</b>	<b>Action to be Taken to Attain Requirement</b>
Federal Regulatory Requirement	Include with construction substantive requirements application information the following: o Modeled impact analysis of source emissions o A Best Available Control Technology (BACT) review for the source operation	Applicable	Applicable to sources meeting the "major" source criteria per the Prevention of Significant Deterioration (PSD) Program in attainment areas.	CAA, 40CFR 52	Submit appropriate information as part of design and construction approval effort
State Regulatory Requirement	Air pollution regulations establish permit, monitoring and record keeping requirements for new air emission sources or air pollution control equipment. May be applicable for alternative requiring treatment systems which discharge to the atmosphere	Applicable	Operation of a new air emission source.	35IAC 201.141-201.151 35IAC 201.152-201.165 35IAC 201.281-201.283 35IAC 201.301-201.302 35IAC 201.401-201.408	Monitor emissions as appropriate, and maintain / submit records as required to comply and consistent with O&M Work Plan.
Federal Regulatory Requirement	Post-closure to ensure that site is maintained and monitored	Relevant & Appropriate	Operation & maintenance of the remedy	RCRA40CFR 264.118(a)(b)	Monitor closure as appropriate, and maintain / submit records as required to comply and consistent with O&M Work Plan.
State Regulatory Requirement	Establishes requirements limiting emission of noise beyond the property boundary.	Applicable	Operation of SVE blower system.	35IAC 900.102 35IAC 901.102 (a) & (b) 35IAC 901.106	Design & monitor system to comply
State Regulatory Requirement	Establishes requirements limiting emission of noise beyond the property boundary.	Applicable	Construction of SVE system.	35IAC 900.102	Design and monitor construction to comply

**ARAR - TABLE 6e**

Action Specific ARARs - On-Site Treatment (e.g. SVE)					
Authority	Requirement	Status	Prerequisite	Citation	Action to be Taken to Attain Requirement
State Regulatory Requirement	<p>Temporary On-Site Storage of RCRA Hazardous Waste from Treatment Residuals, or Other Sources:</p> <ul style="list-style-type: none"> <li>o Establishes minimum requirements for general waste analysis</li> <li>o Establishes minimum requirements for security</li> <li>o Establishes minimum requirements for general inspection</li> <li>o Establishes minimum requirements for personnel training</li> <li>o Establishes general requirements for ignitable, reactive, or incompatible waste</li> <li>o Establishes minimum requirements for arrangements with local authorities</li> <li>o Establishes minimum requirements for site contingency plan, and emergency coordination and procedures</li> <li>o Establishes minimum requirements for use and management of containers</li> <li>o Establishes minimum requirements for tank systems</li> </ul>	Applicable or Relevant and Appropriate	Disposal of condensate from the SVE system	<p>35IAC 724.113(a)</p> <p>35IAC 724.114 35IAC 724.115</p> <p>35IAC 724.116(a)</p> <p>35IAC 725.117(a)</p> <p>35IAC 724.137</p> <p>35IAC 724.151 through 724.156</p> <p>35IAC 724.271, 35IAC 724.275 35IAC 724.292</p>	Manage waste appropriately to comply

a - All of the Clean Air ARARs that have been established by the federal government may be covered by matching regulations. The state may have the authority to manage these programs through the approval of its implementation plans (40CFR 52 Subpart(O)).

b - Bulk storage requires the preparation and implementation of a spill prevention, control, countermeasures (SPCC) plan [see 40 CFR 761.65(c)(7)(ii) for specification of container sizes that are considered "bulk" storage containers].

ARAR - TABLE 7

Action Specific ARARs - Institutional Controls						
Authority	Requirement	Status	Prerequisite	Citation	Action to be Taken to Attain Requirement	
State Regulatory Requirement	Describes institutional controls, and the use of ordinances as institutional controls.	To Be Considered	Placing institutional controls on a property	35IAC 742.1000 35IAC 742.1010 35IAC 742.1015	Utilize in structuring and applying institutional controls to site	
State Regulatory Requirement	Restricts the installation of potable groundwater wells.	Applicable	Cannot be within 200 ft of primary or secondary source of contamination for clay and loam soils, or 400 ft for more permeable formations.	Illinois Dept. of Public Health, Illinois Water Well Construction Code, Section 920.50	Comply & monitor site for non-compliance by third parties	
State Regulatory Requirement	Restricts the installation of potable groundwater wells.	Applicable	Cannot be within 400 ft of primary or secondary source of contamination in unconsolidated and unconfined sand and gravel formations.	Environmental Protection Act, Title IV, Section 14.1	Comply & monitor site for non-compliance by third parties	
State Regulatory Requirement	Restricts the installation of potable groundwater wells.	Applicable	Public water supply wells must be free of contamination.	35IAC 653.118	Comply & monitor site for non-compliance by third parties	
City Ordinance	Requires use of nearby potable public waster supplies.	To Be Considered	Must be within 400 ft of public water supply.	City of Rockford, Water Division Ordinance, Section #31-10	Comply & monitor site for non-compliance by third parties	
City Ordinance	Restricts the installation of potable groundwater wells.	To Be Considered	Restrict well installation into contaminated groundwater.	City of Rockford, Water Division Ordinance, Section #31-10	Comply & monitor site for non-compliance by third parties	

**COST TABLE - 1**

<b>Capitol Cost Estimate for Alternative #2 Institutional Controls and Engineered Barrier</b>					
<b>Item Description</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Cost</b>	<b>Subtotal</b>
<b>Ground-water Monitoring Capitol Cost</b>					
Ground-water monitoring					
Ground-water Monitoring Capitol Cost (GMCC) Subtotal	0	0	\$0.00	\$0	\$0
Management Cost					
Design and Planning	15%	GMCC	\$0	\$0	\$0
CQA/CM	25%	Subtotal	\$0	\$0	\$0
Contingency	15%	GMCC Subtotal	\$0	\$0	\$0
<b>Total Ground-water Monitoring Capitol Cost</b>		GMCC Subtotal			\$0
<b>Engineered Barrier Capitol Cost</b>					
Mobilization/Demobilization	1	lump sum	5%	\$30,307	
Site Preparation	1	lump sum	\$25,000	\$25,000	
Clearing, Grubbing, and Chipping	2.8	Acres	\$3,000	\$8,400	
Well Abandonment	410	ft	\$25	\$10,250	
Remove Utility Poles	4	Ea	\$500	\$2,000	
Remove Old Fence (not perimeter fence)	1	lump sum	\$1,500	\$1,500	
Remove & dispose of tires	1	lump sum	\$2,500	\$2,500	
Drum Consolidation	175	drums	\$50	\$8,750	
Former UST Excavation	840	Cu Yd	\$4	\$3,360	
Place Conc, Rubble in Excavation, Backfill	840	Cu Yd	\$8	\$6,720	
Dispose of Transformers	3	Ea	\$2,500	\$7,500	
Grading Layer (1% slope)	4,700	Cu Yd	\$15	\$70,500	
Geomembrane (40 mil HDPE)	122,000	Sq Ft	\$.48	\$58,560	
Geotextile (10 oz., non-woven)	122,000	Sq Ft	\$.25	\$30,500	
Granular Subbase (12 in sand)	6,900	ton	\$14	\$96,000	
Asphalt, (surface and base course) (8 in thick)	13,700	Sq Yd	\$20	\$274,000	
Engineered Barrier Capitol Cost (EBCC) subtotal:					\$636,000
Management Cost					
Design and Planning	15%	EBCC subtotal	\$636,000		\$95,000
CQA/CM	25%	EBCC Subtotal	\$636,000		\$159,000
Contingency	15%	EBCC Subtotal	\$636,000		\$95,000
<b>Total Engineered Barrier Capitol Cost</b>					\$985,000
<b>TOTAL ALTERNATIVE #2 CAPITOL COST</b>					\$985,000

**COST TABLE - 2**

<b>Year One - O &amp; M Cost for Alternative #2 Institutional Controls and Engineered Barrier</b>					
<b>Item Description</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Cost</b>	<b>Subtotal</b>
<b>Ground-water Monitoring Year 1 O&amp;M Cost</b>					
Ground-water Sampling	1	round	\$2,500	\$2,500	
Chemical Analysis	6	sample	\$1,500	\$9,000	
Data Analysis / Reporting	1	round	\$1,000	\$1,000	
Quarterly site inspection	4	round	\$1,000	\$4,000	
Deep Monitoring Well Replacement	0.3	well	\$10,000	\$3,300	
Shallow Monitoring Well Replacement	0.3	well	\$5,000	\$1,650	
Ground-water Monitoring year 1 O&M (GMY1) Subtotal					\$21,450
Contingency	25%	(GMY1) Subtotal			\$5,000
<b>Total Ground-water Monitoring Year 1 O&amp;M Cost</b>					<b>\$26,450</b>
<b>Engineered Barrier Year 1 O&amp;M Cost</b>					
Annual asphalt patching	1	lump sum	\$3,000	\$3,000	
FML replacement (including design & planning)	5%		\$201,708	\$10,085	
Asphalt replacement (including design & planning)	10%		\$356,200	\$35,620	
Engineered Barrier Year 1 O&M (EBY1) Subtotal					\$48,705
Contingency	25%	EBY1 subtotal	\$48,705		\$12,000
<b>Total Engineered Barrier Year 1 O&amp;M Cost</b>					<b>\$60,705</b>
<b>Total alternative 2 year 1 O&amp;M Cost:</b>					<b>\$87,155</b>

**COST TABLE - 3**

<b>SUMMARY AND TOTAL PRESENT WORTH COST</b>	<b>ESTIMATED COST</b>
<b>TOTAL CAPITAL COST</b>	<b>\$985,000</b>
<b>PRESENT WORTH COST</b>	
Present Worth O&M Cost: Ground-water Monitoring	\$410,000
Present Worth O&M Cost Engineered Barrier	\$933,000
<b>TOTAL PRESENT WORTH O&amp;M COST</b>	<b>\$1,343,000</b>

SUMMARY AND TOTAL PRESENT WORTH COST	ESTIMATED COST
TOTAL PRESENT WORTH COST (Capitol + Total Present Worth O&M Cost)	\$2,328,000

**In the Matter of:**

**Interstate Pollution Control  
Superfund Site**

**Proposed Remedial Alternative**

**(Illinois EPA File No. 347-99)**

**Responsiveness Summary**



## **I. Responsiveness Summary Overview**

In accordance with the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") §117, 42 U.S.C. Section 9627, and National Contingency Plan §300.430(f)(3)(I)(F), and 300.430(f)(5)(iii)(B) the Illinois Environmental Protection Agency ("Illinois EPA") and the United States Environmental Protection Agency ("U.S. EPA") held a public comment period from July 10, 1999 September 10, 1999, to allow interested parties to comment on the "Proposed Plan - Interstate Pollution Control Site, Rockford, Illinois" (July 1999). Illinois EPA presented the Proposed Plan at an evening public meeting on August 10, 1999 at the Holley Center, 2000 Christina Street in Rockford, IL.

This responsiveness summary has been prepared to meet the requirements of CERCLA §113(k)(2)(iv) as amended by the Superfund Amendments and Reauthorization Act of 1986 ("SARA") which requires a response "... to each of the significant comments, criticisms, and new data submitted in written or oral presentations" on a Proposed Plan for remedial action. This responsiveness summary documents the Illinois EPA's responses to concerns expressed by the public, potentially responsible parties ("PRPs") and governmental bodies, in comments received regarding the Proposed Plan for the remedial action at the Interstate Pollution Control ("IPC") site. These comments were considered prior to selection of a final remedy for the IPC Site. The remedy is detailed in Illinois EPA's Record of Decision, with U.S. EPA's concurrence.

### **Repository**

A local information repository was established in 1992 prior to commencement of the Remedial Investigation/Feasibility Study ("RI/FS") at the IPC site. This information repository is located at the Rockford Public Library, 215 North Wyman St. Rockford, IL. The information in this repository includes:

- Complaint (Civil Action No. 91C20136) People of the State of Illinois, V. 52 entities
- Partial Consent Decree for Remedial Investigation and Feasibility Study
- All Workplan documents
- Community Relations Plan for Remedial Investigation/Feasibility Study
- Remedial Investigation Report
- Feasibility Study Report
- Proposed Plan - Interstate Pollution Control Site, Rockford, Illinois

### **Administrative Record**

The complete administrative record is housed at the Rockford Public Library, 215 North Wyman St. Rockford, IL and at the Illinois EPA Bureau of Land - Division File, 1021 North Grand Avenue East, Springfield, IL.

## **II. Questions and Comments Received During the Public Meeting**

The public meeting was structured such that Illinois EPA gave an overview presentation of the Proposed Plan then opened the floor for a public question-and-answer and comment session. As a note three people attended the public meeting, all of which represented the Potentially Responsible Parties for the site. For an exact transcription of the public meeting and the issues raised, and

addressed, during the meeting please refer to the attached Report of Proceedings taken at the hearing of the IPC proposed remedial alternative. The following summary questions/comments (presented in italics) were raised at the public meeting, followed by the Illinois EPA's summary response:

***Will operation of the soil vapor extraction ("SVE") system induce further migration of landfill gas (e.g. methane) from Peoples Avenue Landfill onto the IPC site?*** This is a possibility and is the reason that the proposed plan contains a contingent option to not implement the SVE component of the remedy. The decision to not implement the SVE component would be made after the design effort pilot test and be based on demonstration of uncontrollable adverse impacts from landfill gas.

***Is the Illinois EPA aware of the plume of chlorinated organic solvents, moving from unidentified upgradient sources, toward the IPC site; and will the SVE component be expected to remediate these as they move under the site.*** Yes, we are aware of the upgradient plume; and No, the SVE component of this remedy is intended only to remediate volatile organics in soils at the IPC site thereby removing site contaminants as a source of ongoing contribution to groundwater contamination.

***Will the SVE remedy component have an adverse affect on the current anaerobic degradation of solvents which is occurring at the site?*** There may be a change from anaerobic to aerobic vadose zone conditions however, there are recognized aerobic degradation mechanisms and in fact these aerobic mechanisms can actually benefit from the presence of certain organic substrates such as methane contained in the landfill gas.

***What is the Illinois EPA's intended schedule for execution of the Record of Decision ("ROD") and when will negotiations start on the Remedial Design/Remedial Action ("RD/RA") effort start?*** It is our intention to complete this ROD by September 30, 1999 and open negotiations toward RD/RA immediately following.

***Would the Illinois EPA accept information from outside sources to support the identification of Potentially Responsible Parties for the RD/RA effort?*** Yes.

### **III. Written Comments Received During the Public Comment Period**

Technical comments on the Proposed Plan were received from representatives of the PRP group during the public comment period and are summarized in italics below, followed by the Illinois EPA's response.

***A series of comments challenged the Proposed Plan's indication that "principal threat" wastes remain at the site following past removal actions.*** The Illinois EPA acknowledges the positive benefits of the removal actions and agrees that "principal threat" wastes do not remain at the site. The ROD reflects this acknowledgment.

***An assessment of soil data, gathered during the RI, utilizing the approach contained in the Illinois EPA's Tiered Approach to Cleanup Objectives ("TACO") 35 LAC Part 742 was provided as a comment. This assessment indicates that the no site volatile organic compounds ("VOCs") currently represent a threat to industrial and commercial workers via the inhalation pathway;***

***additionally this assessment indicates that, following construction of the impermeable barrier no VOCs represent a source of further contamination of groundwater.*** The Illinois EPA has reviewed this assessment of data and acknowledges the information presented. As TACO is not an ARAR for this action, but rather information that should be considered in the analysis of a site (commonly known as a To Be Considered) the final selection of a remedial option cannot be based solely on this analysis; however the TACO analysis presents a reasonable case that the SVE component of the remedy may not be required to remove the ongoing source of groundwater contamination. In acknowledging this comment the Illinois EPA has selected Alternative #2 as the preferred remedial action while maintaining the SVE component of Alternative #3 as a contingent remedy enhancement if protection of groundwater is not demonstrated during each 5 year review cycle.

***A series of comments provide opinion that site soils may not represent a significant past or future contributor to groundwater contamination and any positive benefits from the SVE component of the remedy could be negated by movement of recognized upgradient groundwater sources of chlorinated solvents under the site.*** The Illinois EPA appreciates the concern however does feel that the site, as it currently exist, is a source of groundwater contamination. In fact the TACO analysis substantiates that the site, in it's current uncontained situation, is a potential source of VOCs to groundwater. As to the concern that upgradient sources may negate the positive benefits of the SVE component, this concern is out weighted by the ability to remove sources of potential groundwater contamination.

***Several comments reiterated and expanded on the concerns relative to inducement of landfill gas ("LFG") migration onto the IPC site and it's potential impacts on the SVE component.*** Illinois EPA has previously acknowledged this concern in the Proposed Plan and believes that both the proponent and contraindicating positions are both speculative absent the performance of a pilot test to support design and selection of operational parameters for an SVE system. The Illinois EPA has maintained the SVE component as a contingent remedial option with the implementation decision dependent upon performance of an adequately designed pilot test definitively verifying an inability to safely implement the SVE component.

**ADMINISTRATIVE RECORD INDEX  
INTERSTATE POLLUTION CONTROL SUPERFUND SITE, ROCKFORD, IL  
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY**

**March 17, 1994**

**Updated September 1999**

**Update #4**

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), requires the establishment of an Administrative Record upon which the Agency bases its final remedy to contain waste, treat contaminated soil remediate groundwater through monitored natural attenuation at the Interstate Pollution Control Superfund site located in Rockford, Illinois.

The Illinois Environmental Protection Agency (Illinois EPA) has compiled and updated the following official Administrative Record Index for the Interstate Pollution Control site located in Winnebago County, Illinois. (Definitions of abbreviations are provided on the last page.)

Please contact mark Britton (P.O. Box 19276, 1021 North Grand Avenue, East, Springfield, Illinois 62794-9276, 217/524-7342) for more information on who and where to direct questions concerning this index.

**Please note: this is Update #4 dated September 1999.**

<b>No.</b>	<b>Title</b>	<b>Issue Date</b>	<b>Author</b>	<b>Number of Pages</b>
1.	Complaint (Civil Action No. 91C20136) People of the State of Illinois Plaintiff, V. 52 entities.	5/8/91	IOAG	25
2.	Partial Consent Decree for Remedial Investigation and Feasibility Study (Civil Action No. 91C20136) People of the State of Illinois Plaintiff, V. 54 entities.	10/17/91	IOAG/IEPA	154
3.	Work Plan for Remedial Investigation / Feasibility Study	11/92	Golder & Associates	
3.a	Volume I of VI - Scoping Document	11/92	Golder & Associates	181
3.b	Volume II of VI - Field Sampling Plan	11/92	Golder & Associates	83
3.c	Volume III of VI - Health & Safety Plan	11/92	Golder & Associates	147
3.d	Volume IV of VI - Quality Assurance Plan, Part I of II	11/92	Golder & Associates	381
3.e	Volume V of VI - Quality Assurance Plan, Part II of II	11/92	Golder & Associates	307
3.f	Volume VI of VI - Data Management Plan	11/92	Golder & Associates	26

4.	Community Relations Plan for Remedial Investigation / Feasibility Study	2/93	IEPA	19
5.	Letter to Susan Horn (IOAG)	8/20/93	Talbert (IPC Steering Committee)	2
6.	Scoping Memo	8/93	Golder & Associates	128
7.	Final Remedial Investigation Report	1/7/98	Golder & Associates	1030
8.	Draft Final Feasibility Study	12/3/98	Montgomery Watson	190
9.	Final Feasibility Study Revisions	3/30/99	Montgomery Watson	13
10.	Letter to Richard Lange	4/12/99	Montgomery Watson	7
11.	Proposed Plan for Interstate Pollution Control Site, Rockford, IL	8/99	IEPA	15
12.	Report of Public Hearing inn the matter of Interstate Pollution Control Superfund site Proposed Plan	8/10/99	Illinois EPA	~14
13.	Memorandum - Hearing Officer's Report	8/18/99	Illinois EPA	~4
14.	Preliminary Comments Interstate Pollution Control Superfund Site Proposed Remedial Alternative	8/27/99	Dikinis Consulting, Inc.	~17
15.	Final Proposed Plan Comments Interstate Pollution Control Superfund Site Proposed Remedial Alternative	9/17/99	Dikinis Consulting, Inc.	~106
16.	Record of Decision, Interstate Pollution Control site, Rockford, Illinois	9/30/99	Illinois EPA	
17.				
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